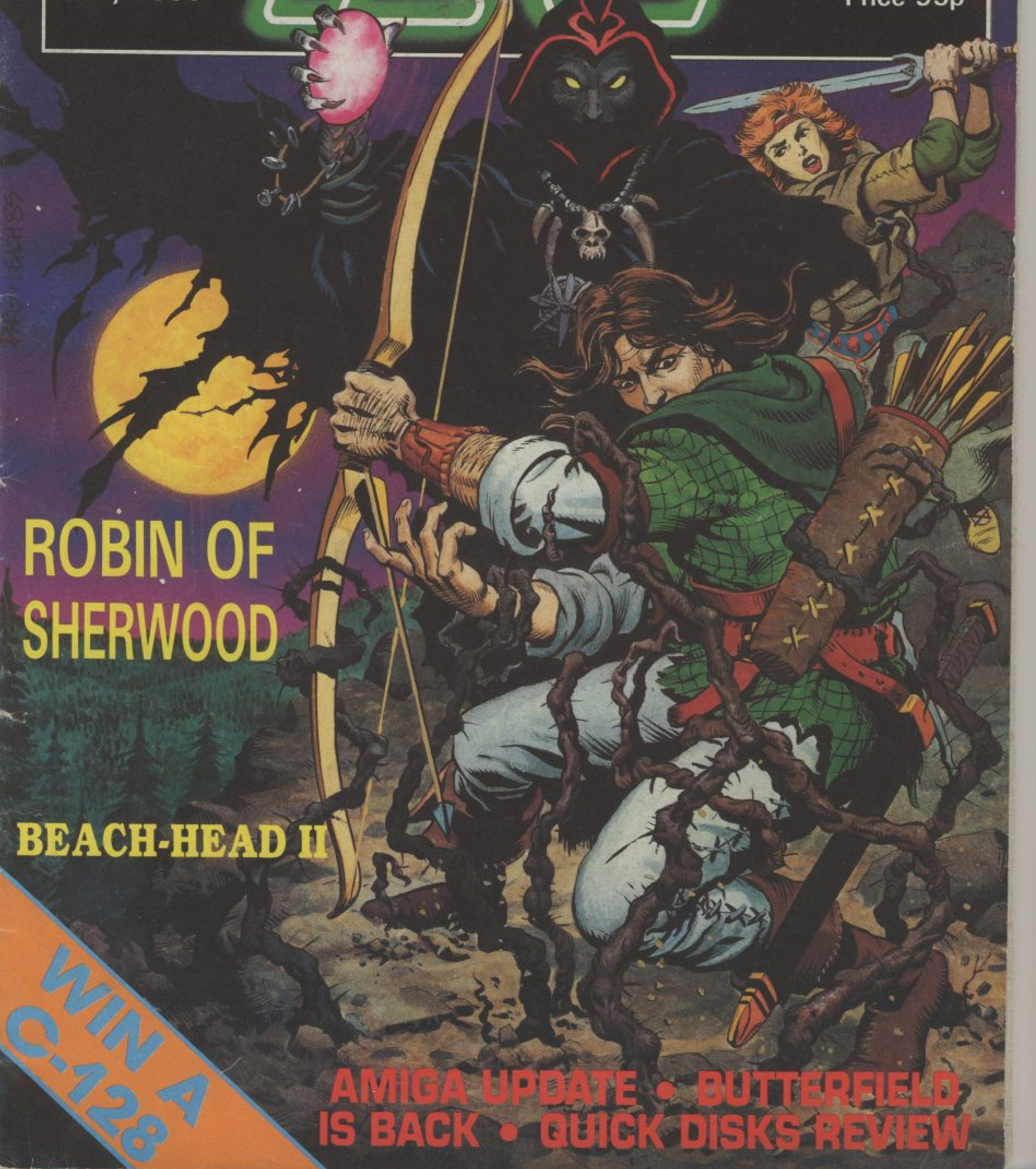
COMMODORE user

July 1985

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ROBIN OF SHERWOOD

BEACH-HEAD II

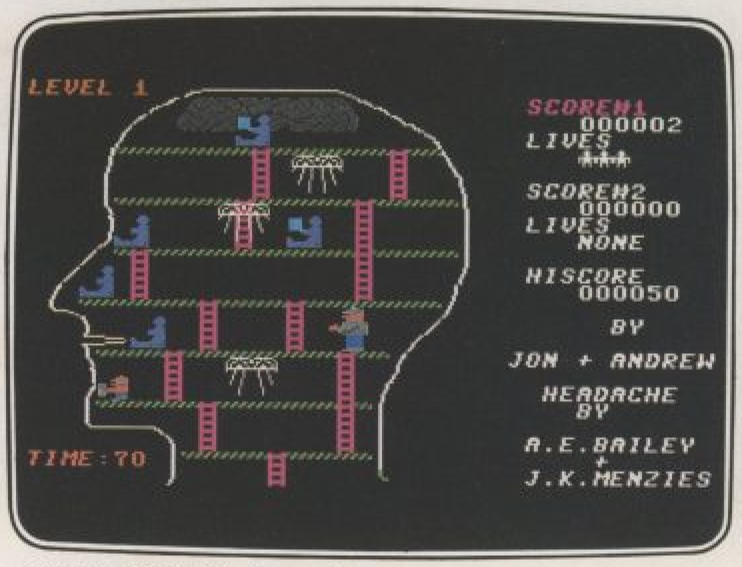
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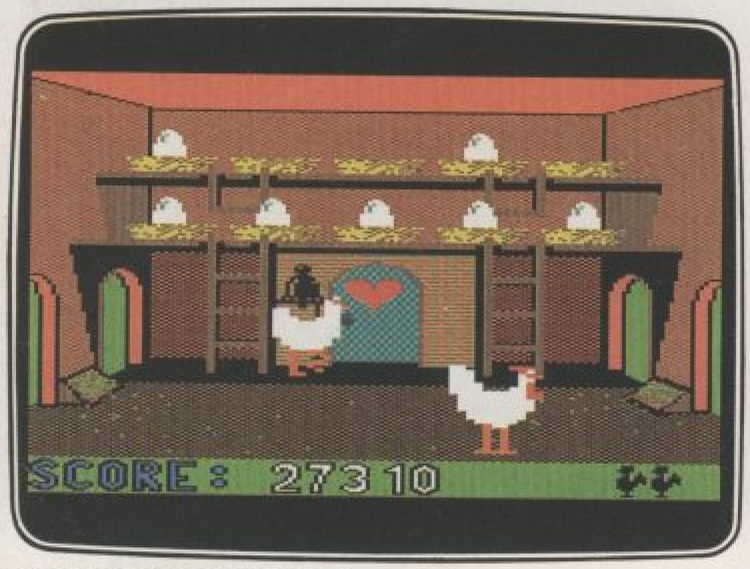
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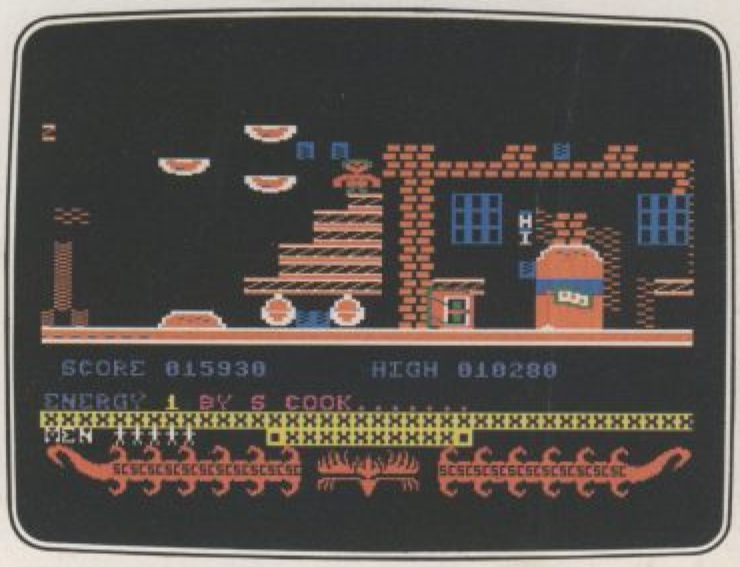
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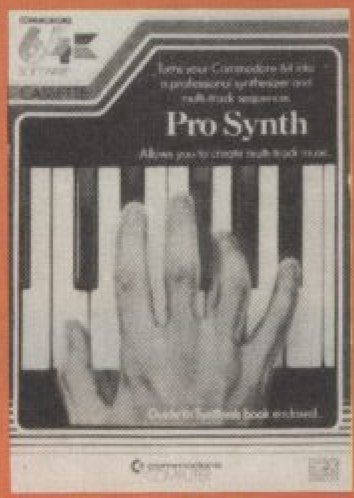
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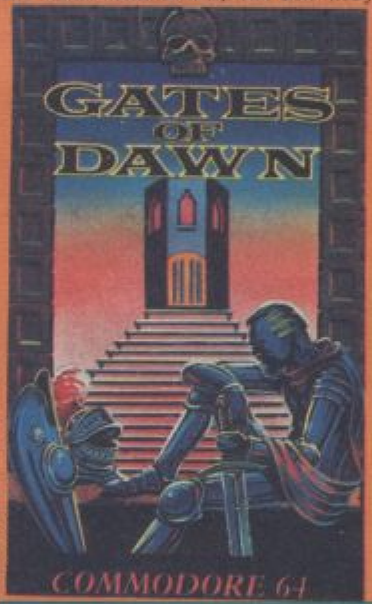
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JULY 1985



Waferdrives compared



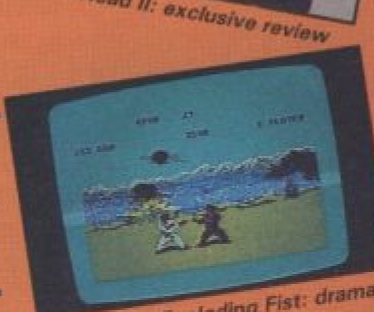


Gates of Dawn mapped

REGULARS



Beach-Head II: exclusive review



Way of the Exploding Fist: dramatic karate screen star



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COMMODORE user

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• Shorts •

Programming in Arabic: One of the more unusual utilities for the 64 is the *ZAN-64* cartridge from Zanine. It's described as "a bilingual Arabic English system" that lets you program in both languages, mix them and translate from one to the other. It's claimed to be 100 percent Basic compatible. If that's not enough for you, Zanine is also producing an Arabic word processor and a bilingual database for the same machine. You can get more details from Zanine on 01-848 4610.

• Shorts •

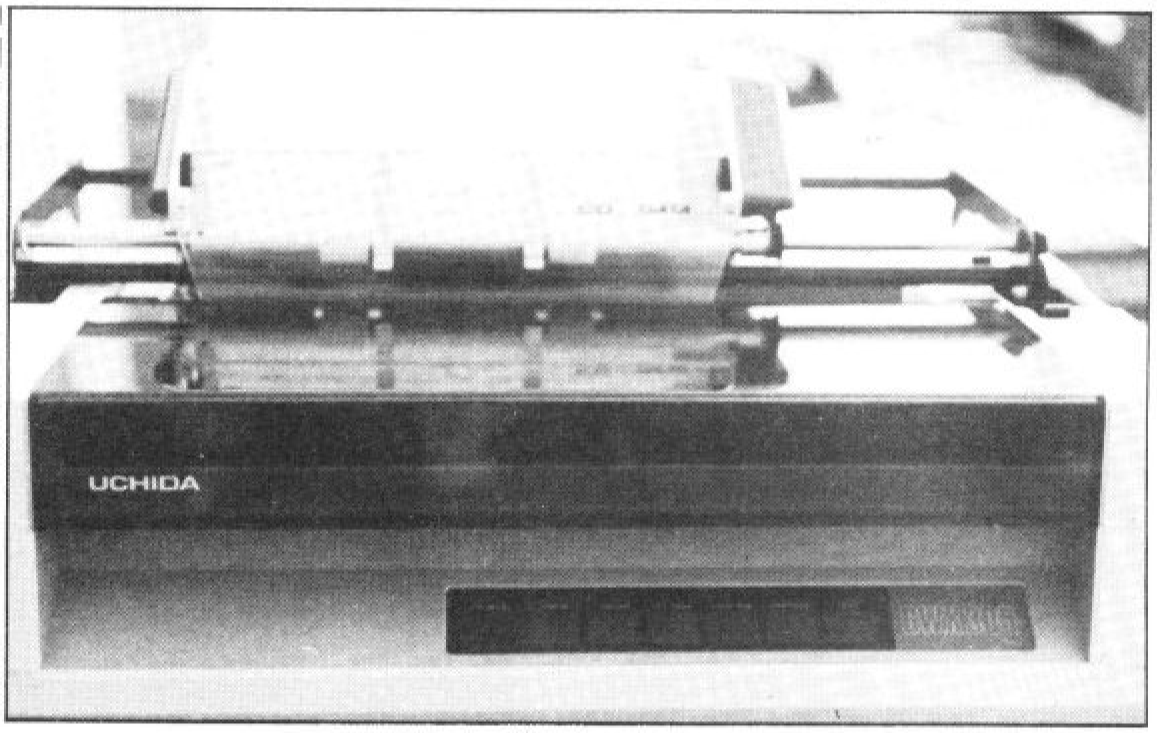
Training with ADA: Ever heard of a programming language called ADA? Not a joke. ADA is a scientific language much used by the US Defence Department to control missiles — and that's no joke either. Now First Publishing has produced *The ADA Training Course* for the Commodore 64 and claims that "it's the language of the future". Costing £49.95 on disk, it contains five programs: editor, syntax checker, semantic-checker, assembler and disassembler. More details on 07357 5244.

• Shorts •

Cheaper Electricity: Ever wanted to know exactly how much electricity all those household gadgets of yours guzzle up? *Calc-Electric* may be the answer. It's an optical sensing device that fits onto your electricity meter and monitors the disk that spins round inside. Costing £24.95, it comes complete with controller, interface for connection to a Commodore 64, and software on tape. Who said you can't do anything practical with a 64? More details from Etalon, the makers: 26 High Street, Merstham, Surrey, RH1 3EA.

• Shorts •

Triton Drives: Here's a sneak preview of a new disk drive for the Commodore 64 we're reviewing next month. Called the *Triton Quick Disk*, it's a single-disk unit that uses rather odd 2.8 inch floppy disks — the disks themselves are housed in a rigid plastic case. The machine is manufactured by the Japanese Mitsumi company and costs £119. Stay tuned for next month's review.



If you really need a daisywheel printer to get classy correspondence-quality print from your word processing, the Uchida DWX-305 may be just for you. At £249, it's claimed to be the cheapest daisywheel around. It chugs along at 20 characters per second, has ten or twelve character pitch selection and uses an industry-standard Qume daisywheel. As usual, only Centronics and RS232 interfaces are provided, so you'll have to buy an adaptor for your Commodore micro. More details on 04862 73883.

COMMODORE SEES RED

The days when Commodore executives could glance at their profit sheets with satisfied smiles are over. News of the 20 million dollar loss made by Commodore International last quarter was gloated over by both the UK and American computer press.

That's not surprising since Commodore, not noted for modesty, has done its fair share to aid the downfall of competitors, with its prices and tough marketing strategy — a case of the biter bit? Casualties included Timex, Coleco, Texas and the pre-Tramiel Atari. Even IBM eventually decided to throw in the towel with its PC Junior.

International chairman Irving Gould added to the gloom by predicting a substantial loss for the full year. In 1983, Commodore's heyday, its stock was worth six times its present value. So what went wrong?

The simplest reason is that the public, both in the UK and the States, are no longer so keen to buy home computers. Last Christmas proved that, resulting in disastrous sales figures. But with the ill-conceived Plus/4 and C-16 machines on offer, what could they expect?

Another reason for the loss is the huge investment Commodore has put into realising its ambition to offer a complete range of machines; not only the 128, the Personal Computer and the hi-tech 900 series, but the still-unseen Amiga.

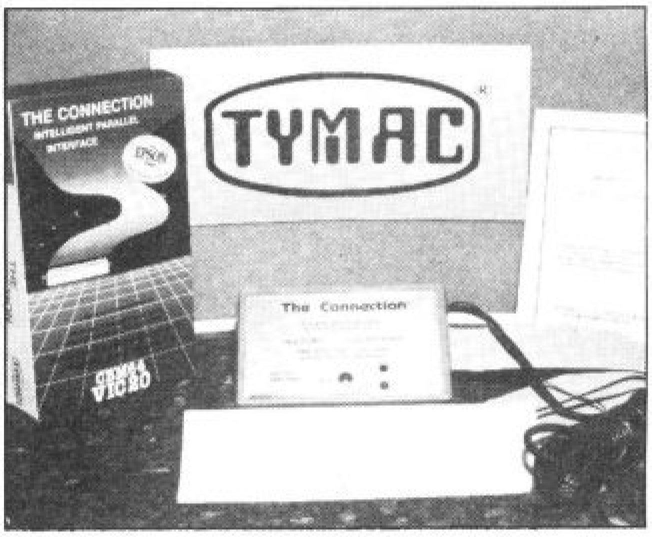
Amiga may be destined to stem the tide for Commodore but with its price already estimated at over the £1000 mark and its non-standard operating system, industry speculators are already spreading doubt — but what else have they got to do?

TYMAC CONNECTION

Tymac (the talking software people) have introduced yet another Centronics interface adaptor for the 64. But this one also works with the Vic-20, 16 and Plus/4 — it simply plugs into the serial port.

Called the *Tymac Connection*, it's not cheap at £79.95 (£84.95 for the customised Epson version) but it's claimed to run virtually any software that expects a Commodore printer, print the Commodore graphics set and support the standard Commodore print commands.

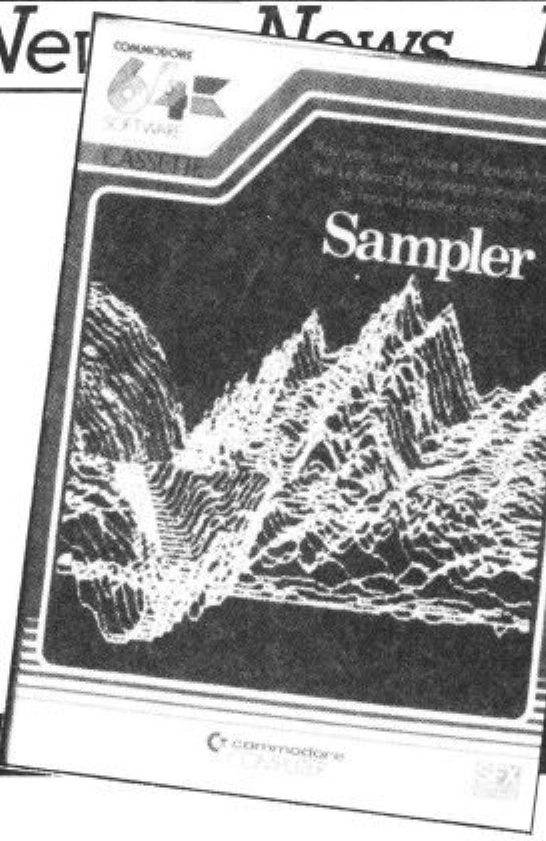
It works in two modes: emulation mode translates control key sequences to your printer, whilst transparent mode passes them through so you can use your printer's particular features. Also bundled up is a 2K buffer, printer-test facility and a one-year warranty. More details from Tymac UK on 021 327 6637.



SUPERBASE STARTER

Probably the only thing that's stopped the illustrious Superbase becoming the best-selling database on the Commodore 64 is its whopping £100 price-tag. Now Precision has decided to release *Superbase Starter*, a cut-down version of the original, which will only damage your wallet to the tune of £39.95.

Superbase Starter is obviously aimed at the beginner, as the Basic-like programming language employed by its 'daddy' has been left out. It will still run the Stepping Stones applications packages, though (£4.99 each) — or any applications you've written with the senior version. More details from Precision on 01-330 7166.



64 SOUND STUDIO

Music Sales, the company that gave us the Pop Hits, Beatles and Popular Classic Playalong Albums for the Commodore 64 and Music Maker (reviewed this issue), have now announced two more packages in the series.

The first is *Sound Studio*, a semi-professional synthesiser and multi-track recording package for the 64, costing just £14.95 on tape. You get a life-like synthesiser control panel on screen, the 'sliders' being adjusted with the function keys. The sounds you set up can be stored in memory for further use.

The multi-track recorder gives you only three channels (that's all the SID chip can manage) but using the interface software to connect a MIDI keyboard, you can get up to six tracks.

According to Music Sales special projects man, David Caulfield, "it's dead easy to use". But what makes it different from Music Maker? "Music Maker is really intended to turn the 64 into an actual musical instrument".

The second package is *Sampler*, a digital sampling package that digitises music for recording and playback. Unlike Sound Studio, this clever piece of work is not for amateurs; it costs a whopping £69.

Sampler comes complete with microphone, MIDI cartridge interface and software on disk. Apart from sampling, it acts as an echo chamber and pitch transformer. Sound Studio and Sampler can be used together. More details from Music Sales on 01-636 7777.

• Shorts •

Jobs on Micronet: Micronet is introducing a new service that will let you use your Commodore 64 to find a job. Starting this month, around fifty job vacancies will appear on Micronet's *Jobsearch* section every Monday. But job areas covered will be more up-market, including management, computing and administration. By the Autumn, data will be updated daily. All this has spawned a zany idea from the Micronet thinktank: by combining its Chatline service with Jobsearch, they eventually hope to conduct on-line interviews. Beat that, Jobcentre.

REPAIRS FOR PC

Independent specialists in computer maintenance, Mills Associates, has now organised a scheme in conjunction with Shipton Insurance Services to look after your Commodore PC-10 or PC-20 when the Commodore warranty runs out after a year. Mills have been "approved" as maintenance contractors by Commodore for the last four years.

The service is called 'PC Cover Plus' and it provides three-year on-site maintenance. The cost is 5 per cent of the recommended retail price for the first year, 10 per cent for the second and 22 per cent for the complete three-year plan you can get more details from Mills on 0600 4611.

EYEING UP YOUR 64

Avid readers of Dan Gutman's US Mail column (April issue) will already know about the *Computereyes* system from American-based Digital Vision. The good news is that this unique package is now available in Britain from Stem Computing in Dundee, having been adapted from the American NSTC system to run on the British PAL TV system.



Computereyes is described as a "video acquisition system" for the Commodore 64. What that really means is that you can produce a high-resolution graphics display on your screen from a video source such as a video camera, video disk or video recorder (just like the one you tape Dallas with).

The complete package costs a whopping £139 and includes the interface module, connecting cable, disk containing the digitising and control software and a rather large owners' manual.

Computereyes connects your video source to the 64's user port. An image is acquired in less than six seconds, with colours transformed into shades of grey.

The finished product can, of course, be dumped to a printer or stored on disk using the image packing routine to conserve space and speed up loading and saving. We're waiting for our review sample.

Meantime, you can get more details from Stem Computing on 0382 65113.

Amiga update

Eugene Lacey reports from Chicago

The much-talked about Amiga managed to steal centre-stage at the American showcase Consumer Electronics Show in Chicago, despite not actually being there. As reported last month, Commodore is keeping this baby tightly wrapped.

But the news that it will be launched in New York in mid-July has prompted pundits to regard it as the most exciting new computer launch that America has seen since the Macintosh. Top brass at Commodore could hardly contain their corporate excitement.

Head of Commodore's American operations, Tom Rattigan, told the press that the Amiga is going to "blow you right off your feet", whilst Commodore boss Marshall Smith pronounced, "Commodore is where the action is over the next six to nine months".

Enthusiasm apart, the real questions are when will the Amiga appear and what will it cost? A reticent Marshall Smith speculated: "You can expect to see the Amiga in Europe in early 1986 . . . probably January. But I don't want to say that definitely as people will then say, hey you promised us the Amiga by January".

Already several sources are suggesting that when the Amiga hits the shops in America next month it will have a $1200 price-tag. Taking dollar/sterling fluctuations into account, the UK price should be around £1000.

So what will you get for the money? From the scarce information gleaned so far, you'll get a system box with detached keyboard (86 keys), the superfast Motorola 68000 central processor, 192K of ROM, 256K of RAM (expandable), built-in double sided 3.5 inch disk drives with 880K storage capacity and an RGB monitor. Up to three drives can be supported including the 5.25 inch variety, if desired.

What makes the Amiga really special is the new windowing operating system, called Intuition, written by UK software house Metacomco. There's also the three much acclaimed custom-built chips controlling sound, graphics, animation and peripherals, giving the Amiga a range of 40096 colours and reportedly stunning graphics.

Graphics can be enhanced through an interface to videotape recorders, cameras and laser disk players which will allow the Amiga screen to be "overlaid". Sound output can also be expanded by two sockets for right and left stereo. There will also be ports for joysticks, a mouse and tracker-ball.

One surprising add-on known to be in the pipeline is an MS-DOS cartridge. This should make the vast range of business software that runs under the MS-DOS operating system available on the Amiga. It also means that the cartridge will contain its own processor, one of the Intel 8086 family of chips.

So it looks as though the Amiga has both the Macintosh and the IBM PC in its sights. Software developers are already saying the Amiga is what the Mac should have been.

You'd expect Commodore to be excited about the Amiga — rather anxious, too. Their continued success depends on it. With the 20 million dollar loss reported at the end of the third quarter of trading Commodore desperately need the Amiga to do well.

Perhaps a more reliable pointer to the potential success of Amiga is the view of the software houses. It's no exaggeration to say that anyone who is anyone in the American software business is developing for Amiga.

Electronic Arts, probably America's premier games software house, is reported to have between ten and fifteen titles nearly completed for the Amiga.

Other companies known to be developing software are Broderbund, Activision, Mindscape, Spinnaker, Datasoft and Epyx.

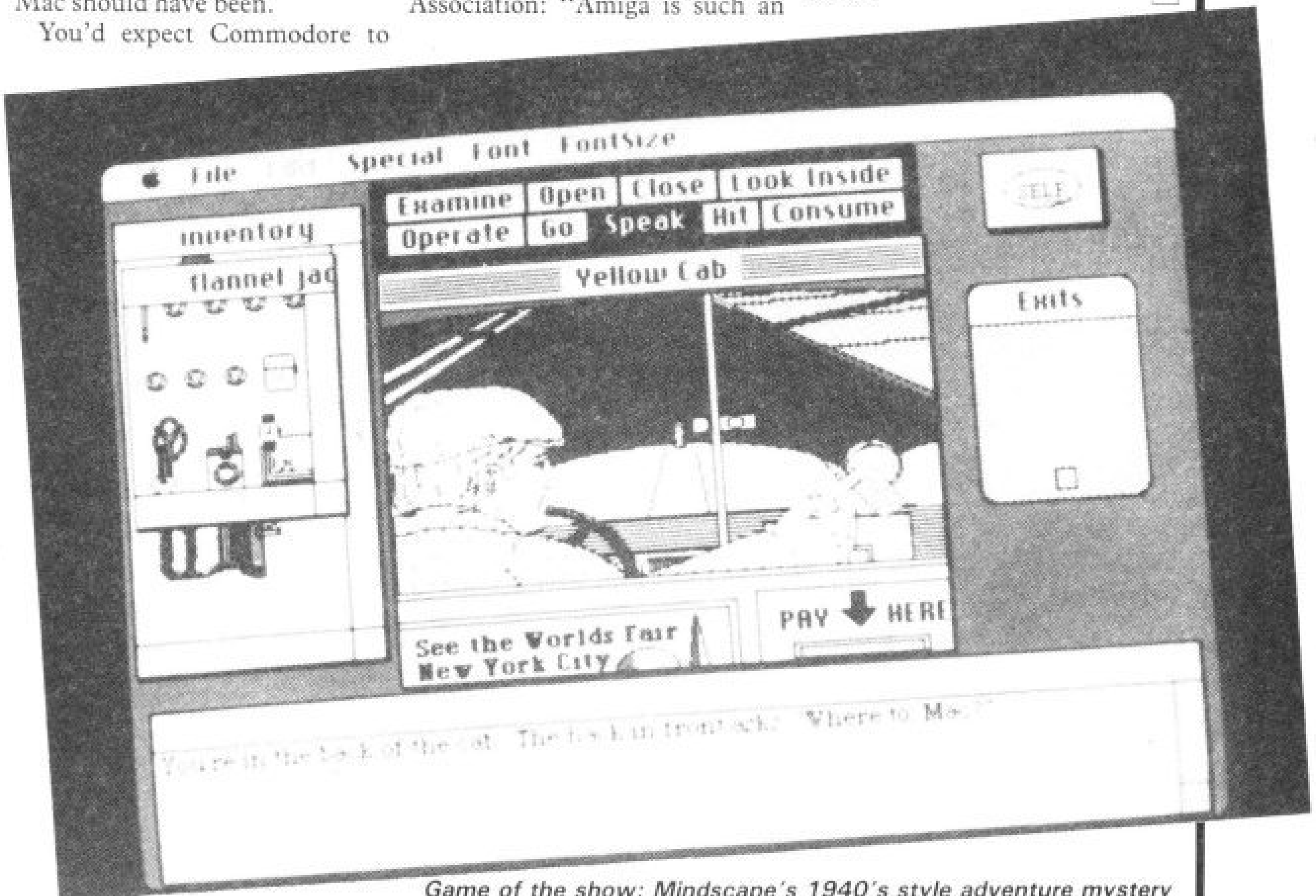
But there's also caution coming from some of the leading houses. Activision boss Jim Levey, told a meeting of the Software Publisher's Association: "Amiga is such an enormous step forward that when you show it to programmers, it completely blows their mind . . . it's going to take at least two years to begin to tap the full power of the machine."

Even at the early stages, the Amiga will have software that's head and shoulders above anything ever seen before on a home computer. One such program is Mindscape's icon-driven *'Deja Vu'* adventure game, which caused a stir at CES, when it appeared on the Mac.

The Amiga version will go on sale in the US later this year and should be appreciably more spectacular in terms of graphics, sound and even animation in some locations — definitely the shape of things to come.

We should see software like this in the UK early next year, and when programmers sort out what to do with the laser disk interface, we'll probably have a format for games to the end of the decade. For the user it's a huge leap forward in sophistication — at a price.

Stay tuned for a special transatlantic report on the Amiga launch in New York.



Game of the show: Mindscape's 1940's style adventure mystery Deja Vu uses windowing and the mouse to let players see the characters, props and action.

THE SOFTWARE TOP 20

COMMODORE 64

	Title	Publisher
1	**Soft Aid**	Various
2	**World Series Baseball**	Imagine
3	**Dambusters**	Sydney/US Gold
4	**Pitstop II**	CBS/Epyx
5	**Cauldron**	Palace Software
6	**World Series Baseball**	Imagine
7	**Entombed**	Ultimate
8	**Impossible Mission**	CBS/Epyx
9	**Theatre Europe**	PSS
10	**Airwolf**	Elite
11	**Everyone's a Wally**	Mikro-Gen
12	**Shadowfire**	Beyond
13	**Pole Position**	Atarisoft
14	**Moon Cresta**	Incentive
15	**Bruce Lee**	US Gold
16	**Big Mac**	Mastertronic
17	**Kickstart**	Mastertronic
18	**Rocketball**	IJK
19	**Spitfire Forty**	Mirrorsoft
20	**Raid Over Moscow**	US Gold

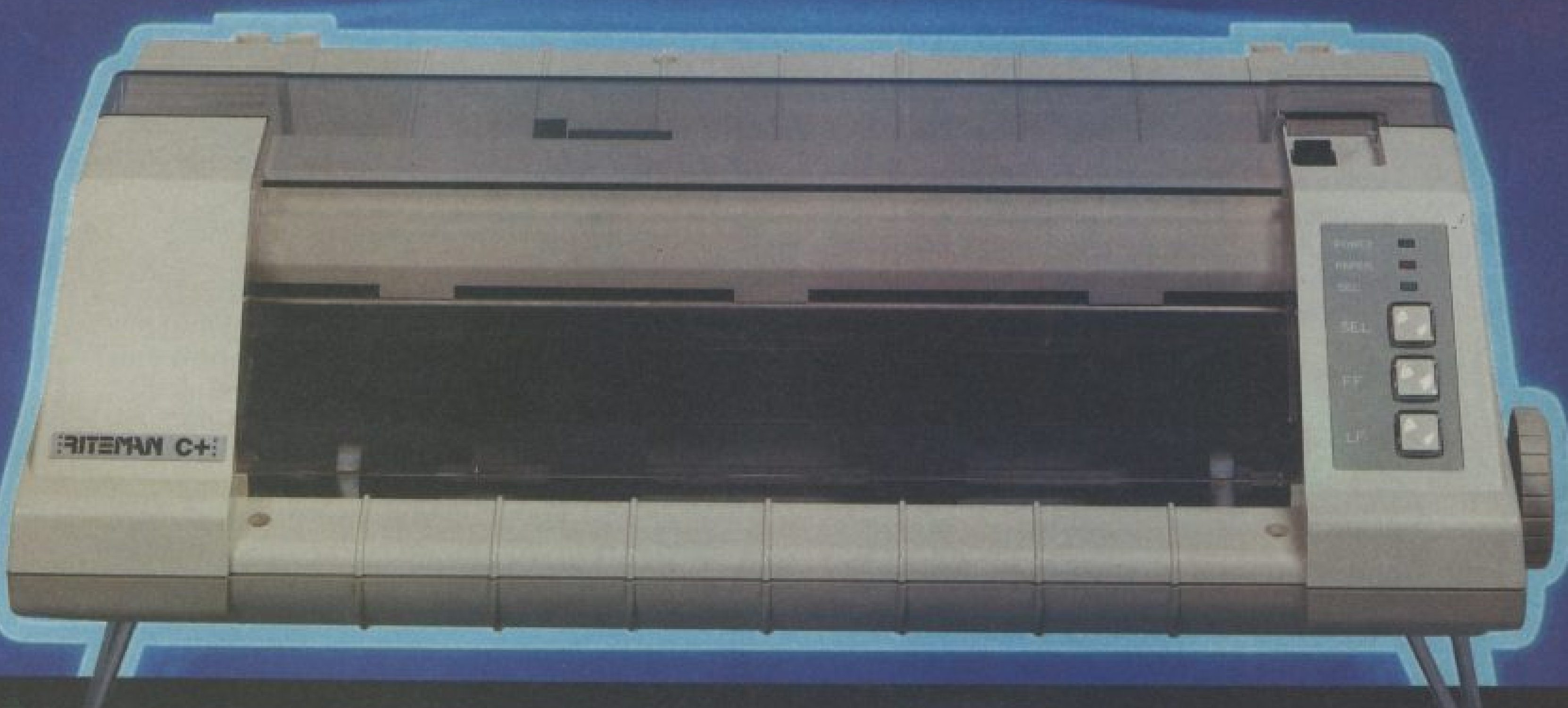
GENERAL CHART

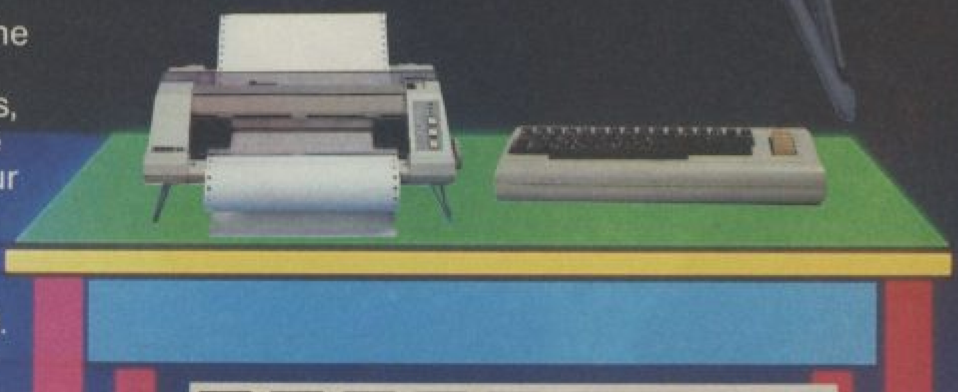
	Title	Publisher
1	**Soft Aid**	Various
2	**World Series Baseball**	Imagine
3	**Knight Lore**	Ultimate
4	**Spy Hunter**	Sega/US Gold
5	**Starion**	Melbourne House
6	**International Basketball**	Commodore
7	**Dambusters**	Sydney/US Gold
8	**Combat Lynx**	Durrell
9	**Bruce Lee**	US Gold
10	**Pitstop II**	CBS/Epyx
11	**Death Star Interceptor**	System 3
12	**Everyone's a Wally**	Mikro-Gen
13	**D T's Decathlon**	Activision
14	**Football Manager**	Addivtive
15	**BMX Racers**	Mastertronic
16	**Shadowfire**	Beyond
17	**Gremlins**	Adventure Int
18	**Moon Cresta**	Incentive
19	**Emerald Isle**	Level 9
20	**Finders Keepers**	Mastertronic

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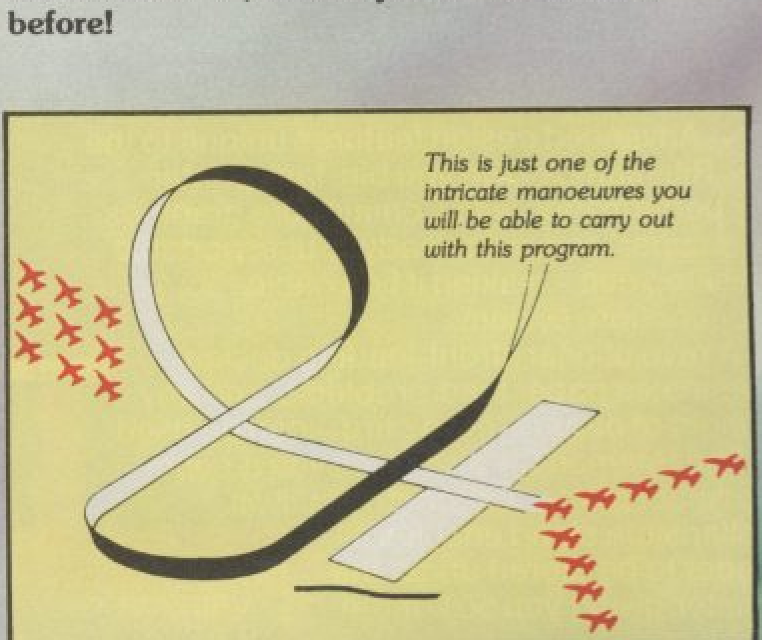
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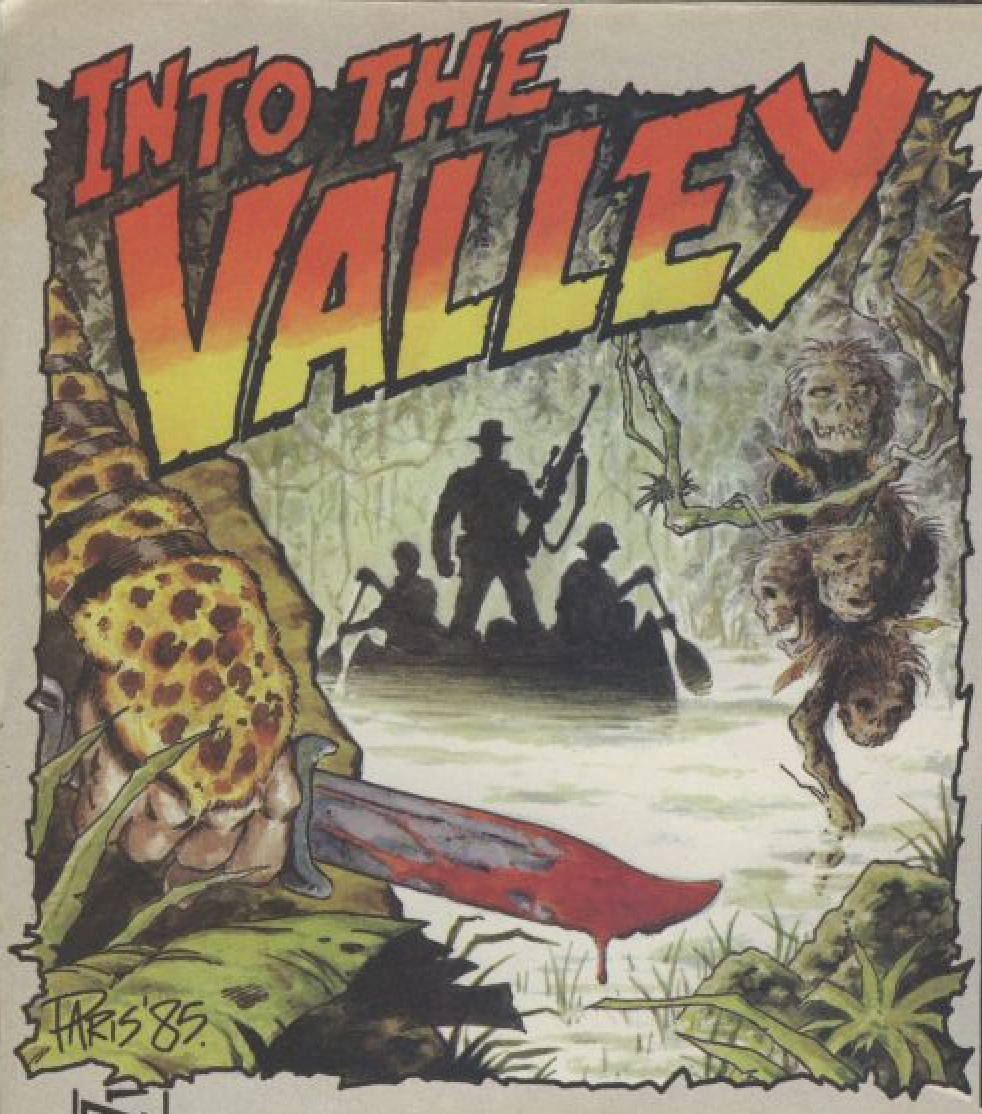
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This month Into The Valley scoops an exclusive preview of Adventure International's new Robin of Sherwood game. And there's more: news, reviews, our very own adventure chart and a competition.





Submarine hunting on the cheap — Firebird's budget-priced Subsunk produced with help from The Quill.



BY
JOHN RANSLEY

Oh — you fickle silent majority. Just a few months ago, a couple of BIG NAMES in adventure marketing were grimacing at me over the top of asparagus tips (I was serving, you understand) because retailers weren't touching anything that didn't have screen upon prismatic screen of hi-res artistry. Everyone, it seemed, wanted to enter the chromatic kingdoms of *The Hobbit* and *Twin Kingdom Valley*. Incidentally, the fact that they often came nowhere near the quality of those two innovatory titles didn't stop them, and the fact that there are many more good adventure authors than there are computer artists and graphics programmers was soon crudely plain to see.

ADVENTURE NEWS • ADVENTURE NEWS • ADVENTURE NEWS

• **If this month's** reviews of the new Firebird and other releases still leave you in any doubt that text adventures are here to stay, then hear this. The new Melbourne House title — due out any moment now at £6.95 — is an all-text adventure by John Steele-Jones, who authored MH's much-admired and very playable implementation of Classic Adventure. *Mordon's Quest* spans 1,000 years (hope there's a SAVE option) and 150 locations, and has a 500-word vocabulary.

• **Expect a new flood** of state-of-the-art adventures from the other side of the pond (but at what price?) now that Ariolasoft are stepping up their UK marketing of Broderbund and Electronic Arts software. Meanwhile, Ariola will be handling Ram-Jam's follow up to their critical success Valkyrie 17, with another graphic adventure, *Three Days in Carpathia*.

• **Update on *The Fourth Protocol*** from Hutchinson, which borrows from Frederick Forsyth's bestseller, is that it will take the form of a three-part quest using icon-driven and text inputs — and at £12.95 on cassette or £15.95 on disk, it had better go beyond Beyond.

• **Rumour has it** that perfectionist Steve Jackson is to blame for the fact that we're still hanging on the telephone for more news of the first title in his new Swordmaster series of role-playing adventures for Adventure International. As a new boy to AI's stable of software stars — which includes Scott Adams and Brian Howarth — it seems that Steve is making sure his debut AI offering will blow their — and your — socks off.

• **The endearingly shy** All American Adventurers offshoot of US Gold still haven't sent any info into the Valley about Exodus Ultima III, but the forest trolls tell me they've heard chatterings about a mammoth fight against evil, involving the wizard of Mondain and his treacherous apprentice, Minax. At £19.95 on disk, I hope to give it a spin soon.

• **C16 adventurers** are decidedly in from the cold with the launch of two text titles, *Williamsburg* and *Mansion Adventure*, from Microdeal at just £3.99 each. And Jim Gregory's Commodore 16 Games Book from Collins (£6.95) includes a meaty text adventure, *The Mystery of the Marie Celeste*, plus hints on writing your own. More about all three in next month's C16 adventure special.

• **Mild-mannered** reporter seeks new job? Just to prove that there's sure no such thing as a sure thing, it's believed that at least one UK software house ruefully greeted the news from Stateside that DC Comics are bumping off Supergirl and Wonderwoman and grounding Superman indefinitely. Worse yet, Phil Redmond, the writer of Grange Hill and Brookside, is set to turn his creations into 64 adventures. *(Oh joy! Ed.)* And just when you thought it was safe to call yourself computer literate, too.

• **Official cheat book** packed with clues and hints to help solve all 16 of Scott Adams' maddening creations — and applicable to Vic, 64 and C16 text or graphic versions — is now available by mail order from Adventure International in the UK. Newcomers *The Hulk*, *Spiderman* and *Sorcerer of Claymorgue Castle* feature alongside classics such as *Pirate Adventure* and *The Count*. Order from AI direct at 85 New Summer Street, Birmingham B19 3TE, enclosing payment of £2.99.

• **Last month's competition answer** was 'St. Helena'. Three cheers and appropriate prize go to Phil Hadfield of Barnsley.

● CHARTS ●

	1 (3)	**Gremlins** (Adventure International, GrA, £9.95)
NE*	2(–)	**Black Crystal** (Mastervision, TA, £3.99)
	3 (1)	**Emerald Isle** (Level 9 GrA, £6.95)
	4 (2)	**Upper Gumtree** (Richard Shepherd, GrA, £9.95/£11.95)
NE*	5 (–)	**Gremlins –C16** (Adventure International, TA, £7.95)
	6 (7)	**Velnor's Lair** (Atlantis Gold, TA, £2.99)
NE*	7 (–)	**Jewels of Babylon** (Interceptor, GrA, £9.95/£11.95)
NE*	8 (–)	**Tir Na Nog** (Gargoyle, GrA, £9.95)
	9 (5)	**The Hobbit** – New disk version (Melbourne House, GrA, £17.95)
NE*	10 (7)	**The Wizard and the Princess** (Melbourne House, GrA, £5.95)

Budget-conscious adventurers are bringing a fresh look to Valley's unique Top 10 — as well as creating a new generation of chart successes and hopefuls.

Gizmo, Stripe & Co firmly box in the No 1 spot thanks to veteran Brian Howarth's faithful and brilliantly graphic true Brit interpretation of the movie that does for pet shops what Commodore hopes to do for Atari. A text-only version for the C16 follows in its wake.

Ray Carnell, another author whose name is whispered reverentially by the adventure cognoscenti, also has a long-overdue chart success with a real value-for-money 64 version of his tasty text teaser, *Black Crystal*.

Jewels of Babylon, a 100-location graphic puzzler by Richard Dawson, seems set to follow Interceptor's success with the Karn duo, and Gargoyle's long-awaited conversion of *Tir Na Nog* makes our chart in time to whet appetites for the sequel, *Dun Darach*, now nearing completion.

This month's anchor title from Melbourne House ingeniously beats the memory restrictions of the C16 by loading in five separate parts, to offer a worthwhile graphic-cum-arcade adventure that's just right for the younger player.

Budget adventuring

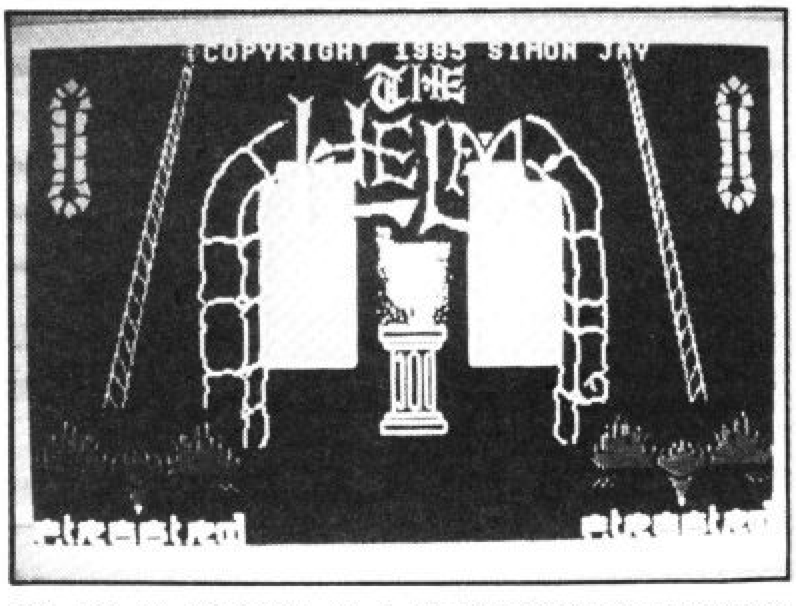
The odd thing about adventurers is that they seem more upwardly mobile than other gamesters. Having cut his teeth on an early graphic, Scott Adams, for example, a Valley person (NB: this is the only adventure column approved by the GLC Women's Committee) is likely to get out of pictures and start savouring the adjectival delights of *Classic/Colossal Adventure, Zork, Snowball, Black Crystal* and the rest.

Well that's my theory anyway, and it's one which our chart and the software houses themselves seem to bear out. Witness our scoop news on Melbourne House's new title, and the welcome release by CDS of *Castle Blackstar* in a 64 version (full review next month). And now comes Firebird, British Telecom's budget software label which is almost managing to give privatisation a good name. Having zonked up a couple of decent arcade chart successes (*Booty, Mr Freeze, Go-Go The Ghost*), Firebird makes an equally respectable 64 adventure debut with *The Helm* and *Subsunk* at just £2.99 each.

Both are Quill-generated text adventures, though by ingenious use of the 64 graphic set, *Subsunk* authors Peter Torrance and Colin Liddle have managed to incorporate really quite effective 'pictures' at each location. The challenge is to free yourself from a nuclear submarine trapped on the seabed — a fairly imaginative scenario and a very welcome change from castles and cobwebs.

Back to D&D, though, for Simon Jay's pure text offering, *The Helm*. In this your task is to perform various tasks and eventually retrieve a magical object. What places *The Helm* in a class of its own is that screen responses are consistently witty and were often so funny as to make this gnarled old critic laugh out loud.

Comebacks such as "What would you have me do next, your absolute brillianceness" and "Hit me with another gem, oh sylph-like cosmic being" may borrow a little from the papier mache Michael Heseltine's vocabulary in *Spitting Image*, but who can fault Jay (no relation, I suppose?) for adapting the joke with such relishable good humour. By the way, after a few screens of *The Helm* you'll realise that text adventures, too, can be as colourful as a chameleon trapped in a paintbox.



The Helm: witty screen responses to make you chuckle

Utilities

The Firebird titles prove again just what excellent — and commercial — results *The Quill* can produce in the right hands. It's not long now before we'll see a 64 version of *The Illustrator*, the add-on from Gilsoft which allows you to add, by easy menu-style instructions, hi-res pictures to your existing *Quill* efforts. Meanwhile, there's more inspiration to be had from Gilsoft's own half-dozen or so titles, which are now available at the ludicrously low price of £1.99 each.

The general consensus is that *Africa Gardens* and *Mindbinder* take top honours, and at that price you can afford to make your own judgement. In the first of these, you're enjoying — but not for long — a stay in an hotel where treasures and other surprises are to be found, and in *Mindbinder*, Paul Styles (who, I suspect, will author Gilsoft's first graphic adventure) also manages to break away from the blandness you might expect of a utility-generated program; plenty of nice puzzles, of course, but there's humour, too.

Incidentally, some sneaky people who own a copy of *The Quill* use the utility's facility to reload completed commercial programs so that they take a peek at the structure and pick up a clue or two. Better still, perhaps it may prove possible, using *The Illustrator*, to add your own graphic efforts to existing titles such as *Africa Gardens*, if only to gain a little experience in the techniques needed before creating your own complete masterpiece — and Gilsoft, Firebird and the rest would no doubt like to hear from you when you do!

Technicalities

I inadvertently fazed a few readers when, a couple of issues back, I had nice things to say about Usborne's adventure titles, *The Mystery of Silver Mountain* and *Island of Secrets* and mentioned that although declared compatible with the 64 and Vic plus 16K expansion, they could also be keyed and run on the C16. The books themselves don't make mention of this, but I can assure readers such as P W C Weaver in Potters Bar that all that keying on the C16 won't go to waste.

However, it's worth taking the precaution of crunching the program lines as much as you can by removing all spaces and using the keyword abbreviations ▶

detailed on page 157-159 of the C16 User Manual.

Incidentally, some readers also query why it is that when running adventures listed in books and magazines, or their self-penned efforts, the program will sooner or later crash with an OUT OF MEMORY error message. Here's why. Even modest adventures use loads of dynamic variables and strings which tend to clutter up RAM with redundant bytes in a most untidy way with every new input you make; they don't contribute anything and thus are aptly named garbage.

Every so often, your micro's own operating system cleans up this garbage for itself, but sometimes this doesn't happen fast enough and the bin overflows (even on a 64) before the dustman can call again. When this happens, free memory runs out. The way to beat this snag is by triggering your own garbage collection at regular intervals. On all the current Commodores, do this by inserting **GC = FRE(X)** in a frequently-called line; for example, the one which includes the key INPUT statement. You can use letters other than GC and X if you've already used those for other variables.

Book Look

I have taken the shallowest dip into **The Creative Computer** by Donald Michie and Rory Johnston (Pelican, 262pp, £6.95 — and that's paperback!) and found plenty in it to interest the armchair programmer — especially of adventure and strategy games. The core subject is the development of computer artificial intelligence, and it includes details of some fascinating routines and experiments which you could have fun trying to interpret on your own micro.

Another intriguing new title is **The Antagonists** from Hal Renko, Sam Edwards and Hermie Hermens (Addison-Wesley, £5.95), which presents both a 'diary' and a hex listing for a pretty ambitious adventure.

Happily my review copy included a tape of the program which can be bought separately. More about this one in a future issue.

Nice to see a good cheapie like *Venor's Lair* making it into our chart. Better news still is that Atlantis offer a free hint sheet. But please enclose a stamped, self-addressed envelope with your request for one — this title's low price surely doesn't leave them with enough profit to pay your postage for you! Atlantis are at 19 Prebend Street, London N1 8PF.

Hints and tips

To crib or not to crib? Up to now the Valley hasn't made it a practice to give hints on solving the puzzles and challenges met in particular adventures, but there's no doubting that some readers are absolutely infuriated when they hit a particular problem that totally blocks their progress — and thus their enjoyment — of the title they're playing. So in future there will be a sprinkling of hints every month (although I can't offer to answer individual queries).

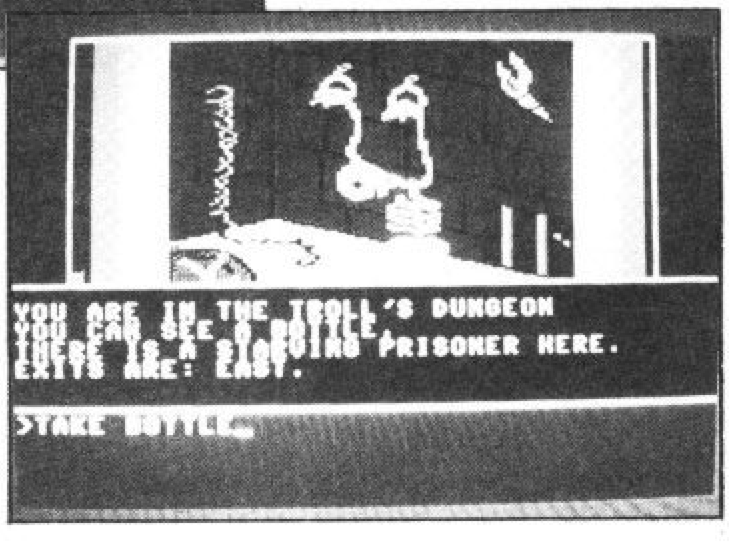
Credits

Adventures are beginning to sport as many credits as LP sleeves or American mini-series (can't wait for the day when Infocom or CBS name their Best Boy), but in *Crystals of Carus* at least, they're all pretty well merited. Author Richard Dawson is new to me, as is graphics artist Claire Challis and musician Tom Gibson. Together they've devised an entertaining package — though as a graphic adventure it's not quite as graphic as you'd maybe expect.



Perhaps the likes of AI, MH and Domark (and even Interceptor's own Ian Gray) have spoiled us, so that we've come to expect a shimmering panorama of pixels at every location. That's not what you get with *Crystals of Carus*, and although Claire's artistry can't be faulted, one frequently finds oneself moving from location to location and still staring at the same old graphics.

Your objective, meanwhile, is to collect five sacred crystals and return them to the rings on the fingers of the realm's imprisoned royal family; see what will happen, Di, if you overspend the Civil List snapping up all those Italian threads? The parser has a decent range, and playing is made simpler by the ability to abbreviate sentences; TAKE WOODEN ROD to TA WO, for example. Definitely worth a place in the hall of fame, but maybe not on a pedestal.



● COMPETITION ●

Do you stay awake nights trying to memorise which way to go after stumbling on the pirate's hideout in Lords of Time? Do you draw funny little maps and keep losing them down the side of the sofa?

You need Print 'n' Plotter's **Adventure Planner** — a whoppin' great pad (twice the format of this magazine) of 50 custom-designed sheets, each printed with 150 location boxes to help you map and record your future wanderings in any text or graphic adventure you play.

The Adventure Planner also doubles as a great programming aid if you're setting out to write your own epic. It costs £3.95 and it's well worth the price — but the Valley is giving away FIVE in this month's competition.

Just answer this question for a chance of winning one: what's the correct name for a person who draws maps?

Send in your answer on a postcard, not forgetting to add your name and address. Better still, use the coupon below and enter your Top 10 votes at the same time.

If you're not lucky enough to win an Adventure Planner, they're on sale at good software shops (go on — tell me if you find one) or you can order direct from Print 'n' Plotter at 10 Borough High Street, London SE1 9SE, including payment of £4.50 including postage.

A drawer of maps is named a ....

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....

My favourite three adventures are:

1. ....
2. ....
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Send your entry to PLANNER COMPETITION, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.

ROBIN OF SHERWOOD

The hit TV show Robin of Sherwood is to appear as an adventure game, courtesy of American software house Adventure International. This game though, like Gremlins, is being produced in the UK. Eugene Lacey follows the arrows.

When Adventure International tied up the rights to the Robin of Sherwood TV series many a hopeful adventurer was heard to mutter "they'll give it free to the poor".

No such luck I'm afraid — you'll need the usual £9.95 so you'll have to rob from the rich yourself if you want to get your hands on this one.

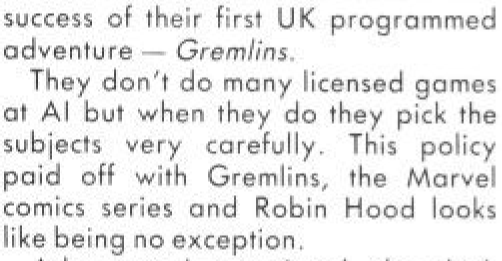
All the signs are that Adventure International are in for another hit with *Robin of Sherwood* to follow the success of their first UK programmed adventure — *Gremlins*.

They don't do many licensed games at AI but when they do they pick the subjects very carefully. This policy paid off with Gremlins, the Marvel comics series and Robin Hood looks like being no exception.

Adventure International also think they are on to a winner with Robin of Sherwood as they are planning not just one, but four different games based on the adventures of the medieval hero.

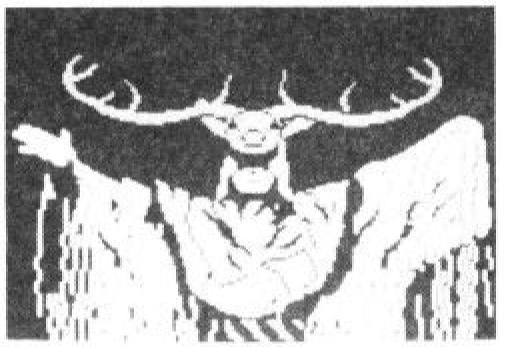
The game will feature a great deal of magic and mystery in an attempt to stick closely to Richard Carpenter's interpretation of the stories.

The first game pits Robin and his merry band against the evil sorcerer who has been brought back to life by a peasant ritual. But he needs three magic stones to regain his evil powers. He's already got one, so Robin must find the other two in order to thwart him.



CONTROVERSY

It was the decision to include these elements that set Carpenter's Robin apart from all the previous TV and film interpretations of the stories. The magic is no invention of Carpenter's though. It was present in the original tales that are part of English folklore and also our literary heritage.



Television campaigner Mary Whitehouse singled Robin of Sherwood out for particular criticism when she named some recent TV programmes that she considered particularly unwholesome. It was the magic and mysticism that she objected to — particularly when it was screened during Easter Week.

AI's boss Mike Woodruffe gives a typical publisher's reply to this criticism: "If Mrs Thatcher is against it the games players are bound to love it . . . the more you tell people they shouldn't do something the more they want to. Take Frankie Goes to Hollywood, the best thing that ever happened to them was the BBC banning the Relax single".

Woodruffe also quotes the example of *Raid Over Moscow* getting a publicity boost when CND picketed US Gold's offices to protest over the commie-bashing computer game. But Robin of Sherwood is going to have more than controversy on its side when it hits the shops this summer.

The programming team — Brian Howarth and Mike Woodruffe the plot and Teoman Irmak the graphics — have come up with a very challenging adventure that again breaks new ground in adventure programming techniques.

Gamers can look forward to no less than 140 illustrated locations plus a few text-only ones thrown in for good measure. Gremlins-style animated screens are also featured.

Not surprisingly the heart of the adventure — some 100 locations — is set in Sherwood Forest. Although to solve the puzzle you will have to get to the castle in which there are a further forty or so illustrated locations. There's also some battles to be fought in the forest. You need to rob a few wealthy travellers, see off some of the Sheriff's men, and again some useful clues from various passers by.

A lot of effort went in to creating the forest and building as much flexibility into the scenarios as possible. It will be the main framework for all four adventures.

PRODUCTION

AI pride themselves on being able to churn out adventures with production-line speed. This is due to the sophisticated development systems they employ. "We have an adventure generator that makes The Quill look like a pencil and paper", enthuses Woodruffe. "We also have a second tool that we use to create the graphics. It was programmed for us by a specialist software house, and it works with an Apricot FI".

Graphics for AI games are first sketched onto paper by resident artist Teoman Irmak. From these roughs the images are then digitised for final inclusion in whatever format the adventure is to appear.

Multi-format adventures are another AI hallmark. C16 owners have benefited from this with all the Marvell comics games and many of the Scott Adams classics now available for the baby Commodore. Robin of Sherwood will also be available on the C16.

Criticisms levelled at adventures that use the same software tools are that they tend to be very similar — no matter what the plot. "The Robin series will be the last adventure written using our existing development systems. Scott Adams is working on a new, totally dynamic adventure writing system that can generate a completely original adventure structure each and every time".

Judging from the success of *Gremlins* and the hopes expressed for Robin of Sherwood one thing is pretty clear. The UK arm of AI is beginning to become a force to be reckoned with in its own right. Watch out Infocom and Scott Adams the Brits are coming.

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WIN A C-128!



To follow up the first review of Commodore's superb new computer — the C-128 — published exclusively in Commodore User's May issue, we are now offering a fantastic opportunity to readers — the first chance to win one.

The C-128 is the ideal upgrade for the 64 owner who is ready to go on to bigger and better things. Its main points of interest are that it is 100% Commodore 64 compatible, has a '128 mode' and a third processor (Z80) which lets it run the CP/M operating system.

In effect you have three computers in one box. A 64 mode computer to enable you to play all your favourite games and any other piece of 64 software you can't bear to part with.

Secondly you have a Z80 machine which enables you to run any of the enormous range of CP/M business software that is available. CP/M is the real thing — a genuine business operating system that supports, amongst other things, the professional 80 column word processors, databases, and spreadsheets.

Thirdly, and by no means least, is the excellent 128 mode. This offers the most sophisticated form of Commodore Basic to date. Bags of extra Basic commands, miles more memory, and a professional-style keyboard.

At around the £300 mark the C-128 is set to clean-up this autumn when it hits the shops. Don't miss your chance to win one of the first machines to be available in the UK. (The launch date for the 128 hasn't been fixed yet so the lucky winner may have to wait until it's released before the prize is despatched. Trust us!)

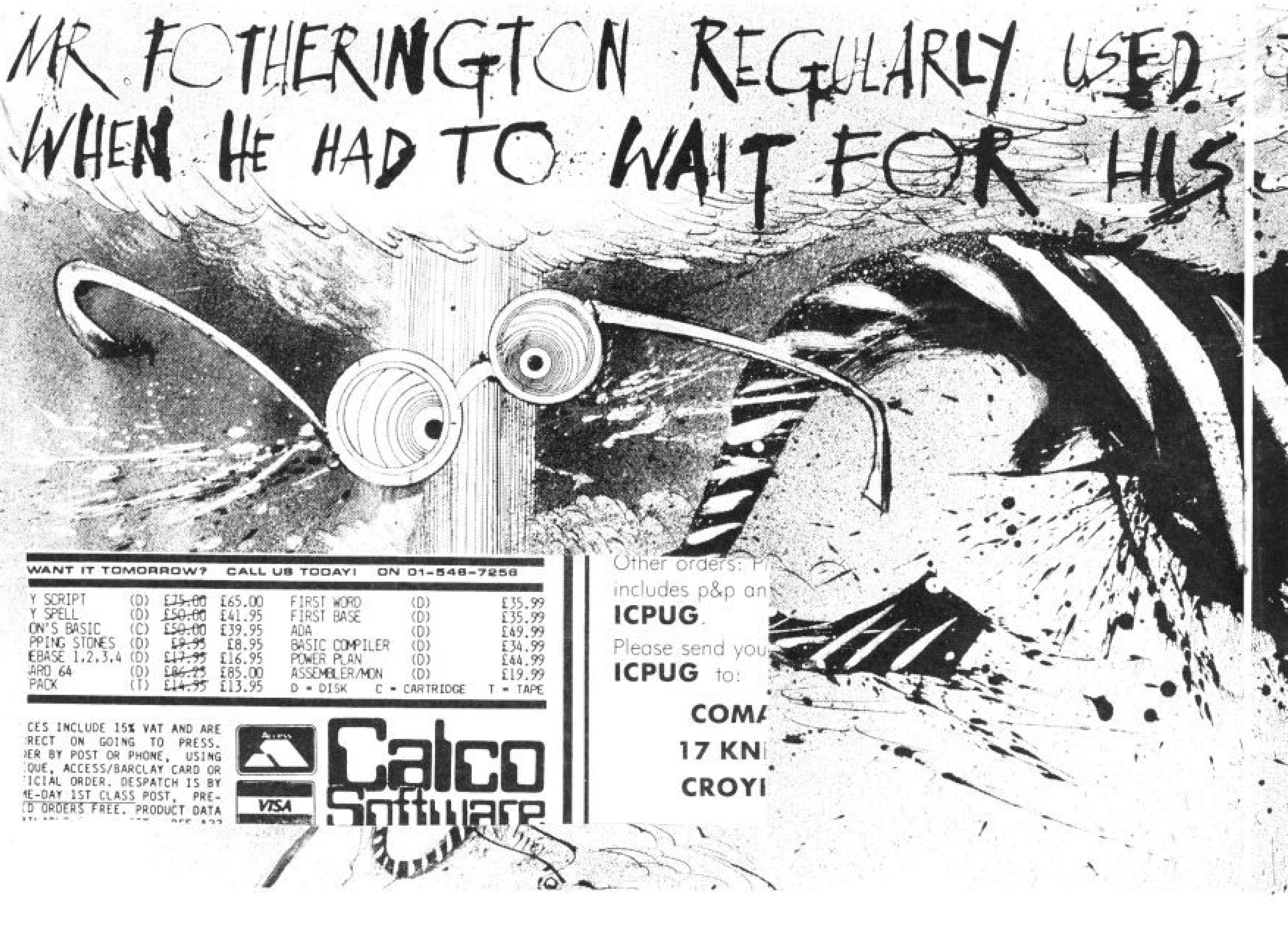
To win your C-128 all you have to do is find the three Commodore key signs hidden throughout this magazine, fill in the form below, and send it off to: **Commodore User C-128 Competition, Priory Court, 30-32 Farringdon lane, London EC1R 3AU.**

Entries must reach us no later than 26th July.

Here's an example of a Commodore symbol so you know what you're looking for:

RESULTS

The response to our May Dambusters competition was overwhelming and very few of you actually got all the questions right. Barnes Wallace actually got his idea for the bouncing bomb from Lord Nelson, who found he could inflict more damage on enemy ships by bouncing his cannonballs on the waves first. The lucky winners were: Iain McCowatt from Wigan, Kelvin Herbert of Bristol, F Martin of Newmarket, Colin Trench of Ipswich, and Anthony Morton of Stockton-on-Tees. Well done, your prizes are on the way.



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ALIGNMENT PROBLEMS

1541 PHYSICAL EXAM £39.95

IS YOUR 1541 HEALTHY? OR WOULD ITS PHYSICAL EXAM LOOK LIKE THIS ONE?



Package includes:
- True digital alignment disk with offset tracks
- Quiet Drive stops to reduce need for continued realignment on old style drives

DISC DISECTOR V3.0

Now the ultimate disc copying and utility program for the CBM 64 with 1541 disc drive has been **improved even further**. As well as general improvements plus the addition of some useful utilities two important new programs have been added.

The Evesham Nibbler

This is the first copier of it's kind to appear on the U.K. market. It is a **true nibbler** (byte for byte) copier that will copy **ALL DOS errors automatically**. This includes DOS errors 20–29 inc. plus non standard errors like half tracks, extra tracks, non standard sync. renumbered tracks, etc. They are all treated as normal work. No knowledge is required at all it just "**nibbles away**" and produces a perfect copy. Yet it **only takes eight minutes**. Has copied **all discs tested** (except itself). A **class above** anything else available.

Fast File Copier

An **incredibly handy** selective file copier that LOADs and SAVEs at **five times** normal speed. Sounds useful? You won't believe how much until you have used it.

As well as these programs "Disc Disector" incorporates a whole host of useful utilities including the following: **Fast Format**, **Selective Menu Maker**, **Disc Editor** (new sophisticated machine code version), **Scratch/Unscratch**, **Fastcopy**, **Rename**, **Fastload** (four times faster), etc. etc.

This program is an **essential purchase** for the 1541 user.

ONLY £29.95

Customers with earlier versions may return them along with £9.95 for "V3.0".

"QUICKDISC+"

Get a **QUICKDISC+** cartridge plugged into your '64 and your 1541 will really **start to perform**. So many features per pound (sterling) that you will hardly believe it. Includes the following:

Fast LOAD and SAVE (four to five times normal speed). Works with most protected software. Can be switched in and out from the keyboard.

Fast Format takes just 10 seconds.

Fast Backup copies an entire disc in four minutes. (Not protected software but ideal for your files etc.)

Fast File Copier for selective fast copying.

Improved DOS commands (DOS 5.1) makes for easy use of the disc drive. e.g. $(RETURN) will LOAD and display a directory without overwriting BASIC. SHIFT RUN/STOP will LOAD "0:*", 8, 1 etc. Very, very useful.

Incorporates Centronics printer software (user port) **with CMB graphics** capability. See "Commodore Connexion" for suitable lead.

A RESET switch is fitted on the cartridge which rounds off perhaps the most useful add on produced for the '64 in quite a while.

Now the price. No not £49.95 it's **not even half** that much. Can you afford to be without QUICKDISC+

ONLY £19.95

No extra connections are necessary with QUICKDISC+ and unlike most similar products it is compatible with printers and second drives.

STILL POPULAR

DISCO
Still **the best tape to disc** utility for normal speed loading tapes. Simple to use but rarely beaten. **ONLY £9.95**

FASTBACK
Converts most slow loading tapes to "**turbo**" **load**. Single and multi part. Very easy to use. **ONLY £9.95**

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A superb text to speech synthesis program that is great fun to use. **Unlimited vocabulary.** **ONLY £7.95**

ROCKET
A useful resident fastload/save utility for the '64. Handy for the programmer who hasn't a disc drive. **ONLY £7.95**

TAPER
Tape copier for normal speed loading software. Easy to use and very rarely beaten. **ONLY £5.95**

COMMODORE CONNEXION
Software and cable for connecting **any centronics type printer** to the '64. Or use with Quickdisc+ **ONLY £17.95**

QUICKDISC
Speeds up disc loading by **four to five times**. Includes menu maker and other utilities. **ONLY £11.95**

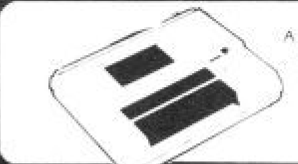
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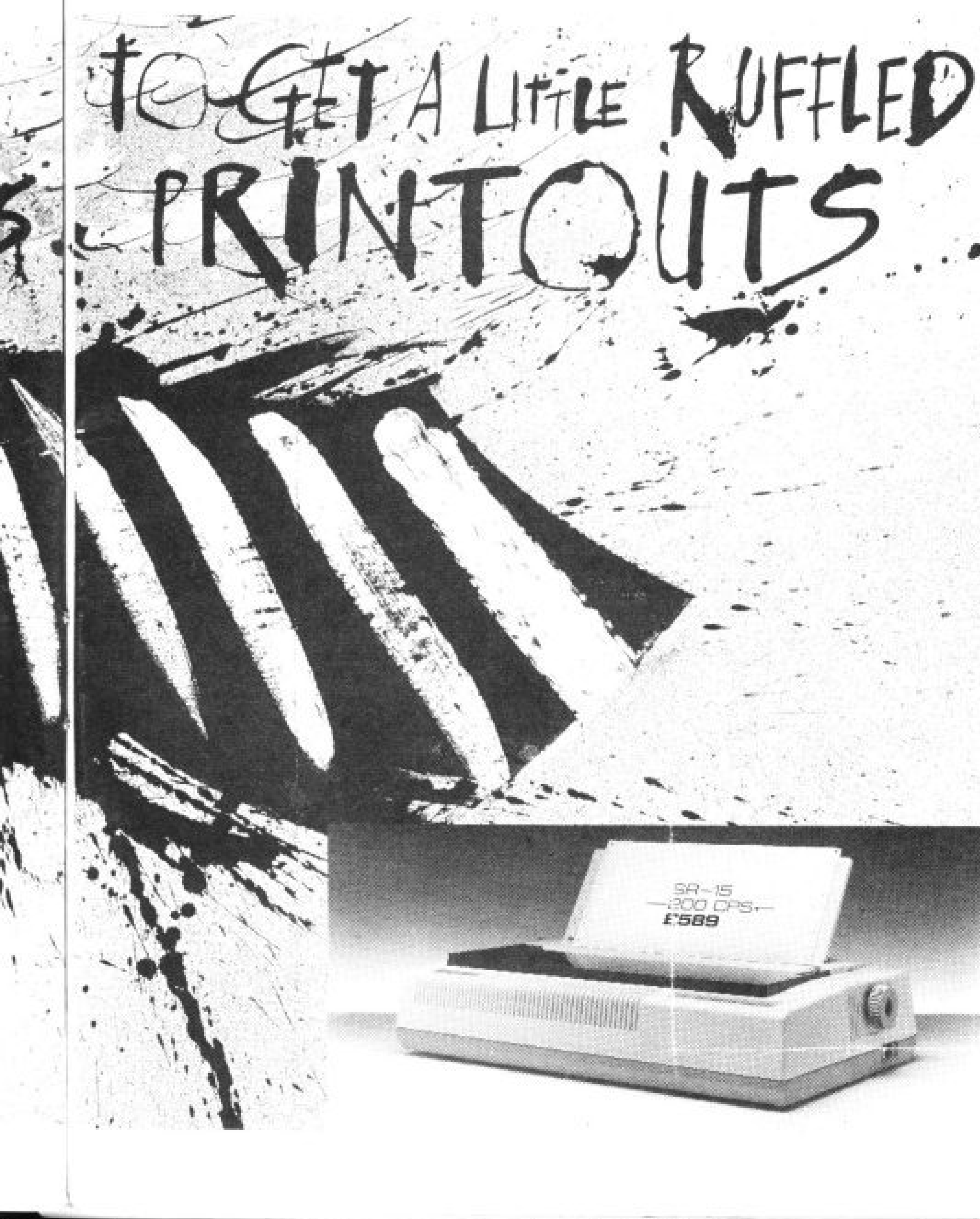
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There are thousands of Mr Fotheringtons throughout Britain who have to wait unnecessarily long for hard copy.

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WHEN WILL YOU BECOME A STAR WITH ONE OF OUR PRINTERS?

FORTRESS

If you thought getting inside the obelisk in *Staff of Karnath* was tough then let me assure you that extracting information from Ultimate Play the Game is infinitely more difficult.

The leading games people have a simple way of dealing with press enquiries — a one word reply, NO.

Can you tell us what your next game will be called? Can we interview your programmers? All these routine enquiries come up against the same stone wall resistance.

All of this can make your average computer games scribe pretty irritated. After all, there's you, the good punter, regularly handing over your tenners to put every single Ultimate game ever launched into the charts. Now you would think that in gratitude for this support Ultimate would let you know a little bit about themselves. You would be wrong.

To bring you this exclusive report our intrepid correspondent had to overcome obstacles far tougher than anything ever dreamt of by Sir Arthur Pendragon.

Ultimate Play the Game are the best software house in the country.

Some people would have you believe otherwise — that Ocean, Activision, or Beyond are as good — but to prove the point you only have to look at Ultimate's track record.

***Jet Pac, Atic Atac, Sabre Wulf,* and *Knight Lore* all number one hits. *Under Wurlde, Alien 8, Staff of Karnath, Trans Am, Psst, Lunar Jetman,* and *Cookie* all in the top ten.**

In 1984 they won the Computer and Video Games Golden Joystick Award for Game of the Year, and Software House of the Year. In 1985 they swept the board again — taking Game of the Year with *Knight Lore* and Software House of the Year. *Knight Lore* was also tipped to take the British Micro Computer Award for Game of the Year.

No other software house — including the imported wares of Epyx, Access, Broderbund, and Electronic Arts, can point to anything like this degree of success.

So what makes Ultimate tick and what makes their games so good?

To answer this question you have to go back five years to when the pay-per-play arcade games boom was at its height.

The current directors of Ultimate were working for the leading arcade games firm — Associated Leisure.

Brothers Christopher Stamper, Tim Stamper and colleague John Lathbury were the stars of the game design department.

Associated director Norman Parker was well aware of their talents and persuaded them to come with him when he left to set up his own firm — Zilec Electronics.

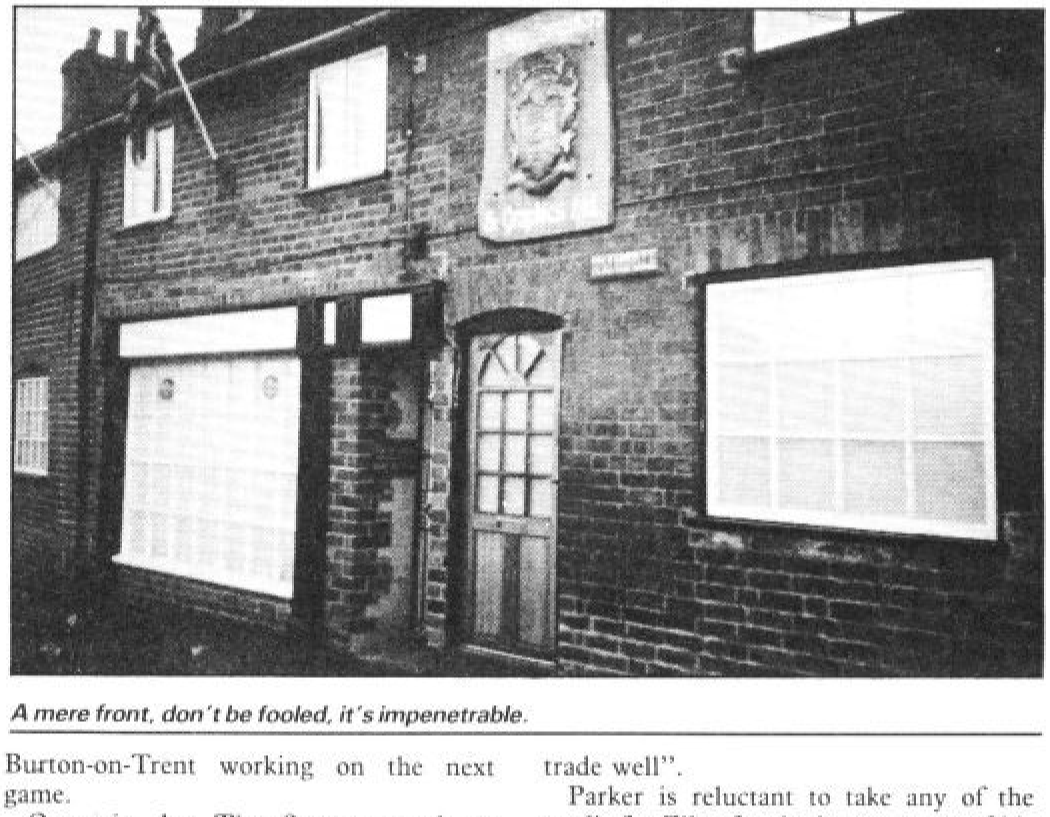
It was in their time at Zilec that the now Ultimate Design team got their first real taste of success.

They were no longer merely employees as Parker had made them into directors of the company.

They programmed a total of twelve arcade games for Zilec — some real winners amongst the dozen were *Gyruss* and *Blue Print*.

The names of the other games is a closely guarded secret though we do know that they were sold to some of the world's top arcade game manufacturers. Konami and Sega have both marketed games originally designed by Messrs Stamper, Stamper, and Lathbury.

It was an exciting time for the Ultimate boys. On one occasion John Lathbury got a phone call from Parker who was in Miami on business. "There's a problem in Japan . . . the cocktail table version of Blue Print won't work . . . I'll meet you at Tokyo airport tomorrow morning and we'll sort it out". Two days later Lathbury was back in Burton-on-Trent working on the next game.



A mere front, don't be fooled, it's impenetrable.

One trip that Tim Stamper made to Japan was not quite so memorable. "We went to a Suchi restaurant with some Japanese business men" recalls Parker . . . "They cook the food in front of you. One of the specialities is live shrimps that squeal when they are thrown into the pan. Tim took one look and his stomach turned immediately and he had to beat a hasty retreat back to the hotel."

Whilst working at Zilec Chris, Tim and John travelled all over the world.

"They saw all the best products from around the world . . . they learned their trade well".

Parker is reluctant to take any of the credit for Zilec for the later success of his ex-colleagues.

"They would have learned their trade anywhere all three of them had tremendous talent — there was just something about them, you just knew they were the best and they knew it as well."

Neither John Lathbury nor the Stampers takes any credit for the Ultimate games. Ultimate credit all of their games to the team. This was also the way they worked whilst at Zilec.

"They were all equally good. I can't honestly say that one of them was a leader

ULTIMATE

INSIDE ULTIMATE PLAY THE GAME



or that one was better than another".

But if Zilec can throw no light on the way the Ultimate design team work we do have some clues from the descriptions of the directors in the legal documents signed by them all when the company was set up.

Christopher Stamper and John Lathbury are described as "Software Engineers" whilst Tim Stamper is described as a "Graphic Designer."

There is also another designer involved as a director of Ultimate — Carole Ward — who is also the company secretary.

There is therefore a fifty-fifty split between designers and programmers in the Ultimate team which is not very different from the way a number of larger software houses work. This is also the way Activision produce their games — with designers concentrating on graphics, sound and music experts, and programmers producing all the code.

A FAMILY FIRM

Ultimate is often described as a family firm with Tim and Chris's sister — Louise, now also working for the company.

The family unit will soon be strengthened further when Tim Stamper and Carole Ward get married in Leicestershire later this year.

THE ULTIMATE EDGE

If Ultimate work in a similar way to many other software houses it is difficult to point your finger at any one aspect of their work and say this is the Ultimate edge.

I asked Norman Parker why he thought they were so good. "They are completely down to earth about games. They know what a game has to do to make money. In the arcades a game has to take money immediately or it will almost literally be scrapped. They learned this important lesson from the arcade business."

"Another important point is that they are more than just software people, they are also very competent hardware experts."

This point was stressed by successful games writer Tony Gibson who told **Commodore User** last month about his knowledge of the Ultimate Design team. "They practically redesigned the Spectrum processor to get it to do the things they wanted it to do. They are just very clever people . . . I don't mind admitting that they are better than me".

It is these techniques and the code used in their games that are the most closely guarded secrets of fortress Ultimate.

To describe Ultimate's head-quarters as a fortress is only a slight exaggeration. It is impossible to see through the thick perspex of the windows. All callers are questioned on an entry phone before being allowed admittance and the garages at the rear of the offices have a board up saying "Private Keep Out".

NOT ALL FRIENDLY RIVALRY

Most of the UK's other top programmers good naturedly acknowledge the success of the Ultimate Design team and have a huge amount of professional respect for them.

But the Howard Hughes-style manner in which they deal with this success has also earned them their critics.

The knives are always quickly drawn in some circles when there is any suggestion that Ultimate might have slipped up. Their withdrawal from the Soft Aid tape in aid of Ethiopia lead to charges of them being 'Prima Donnas' and 'selfish' and when *Sabre Wulf* was launched their sequel to the enormous hit — *Atic Atac* — there were those who said it was just *Atic Atac* all over again in the jungle.

Ultimate have never answered any of these charges. They really don't need to as the games buying public always provided them with the best possible answer to their critics — a string of hits.

64 GAMES DELAY

64 owners have had to wait a long time for their first Ultimate game. Shop keepers were baffled as to the reason why no 64 versions of *Jet Pac*, *Sabre Wulf*, or *Atic Atac* were never produced when they were getting dozens of requests every Saturday from eager 64 owners.

The reason has now been revealed. Rather than going for conversions Ultimate have developed completely new 64 games. The first of these *Staff of Karnath* — was an instant hit and has now been followed by the equally successful *Entombed*.

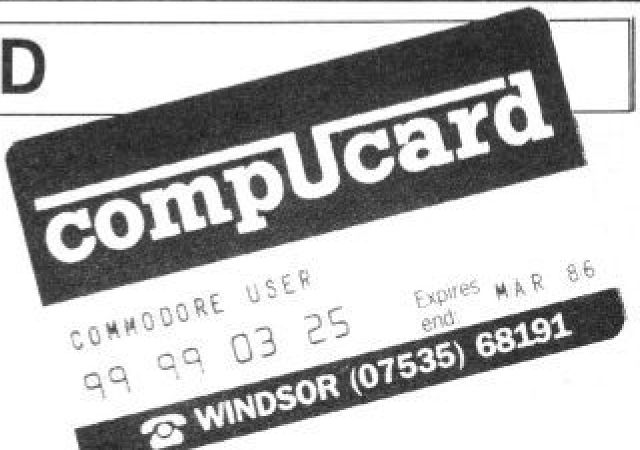
Entombed and *Karnath* introduced the games hero Sir Arthur Pendragon — the eccentric archaeologist explorer.

You can expect to see Sir Arthur in a third game as Ultimate tend to do this type of game in threes.

64 owners are also going to get some conversions as the rights to *Sabre Wulf* and *Underwurlde* have now been sold to Fire Bird who will launch the games in the Autumn.

Ultimate have made a slow start in the 64 games market but now that they are here the days of the best 64 games coming from across the Atlantic could be over.

A LOOK AT COMP-U-CARD



Compunet isn't just about downloading software for your Commodore 64, messing about in The Jungle and accessing loads of information. You can do your shopping with it by accessing the Comp-U-Store section. So what is it and how do you use it?



Does the thought of wandering a crowded High Street in search of a new washing machine, Hoover or computer printer make your feet start aching in anticipation? If it does, you're just the person Comp-U-Card is looking for

For the last two years, Windsor-based Comp-U-Card Limited has been providing users with a service that lets them use their telephone to choose and buy from a huge range of household electrical appliances. That may be shopping he hi-tech way, but you'll need to fork out £20 for membership.

Now, that same system is available to Commodore 64 owners who are members of Compunet. It's called Comp-U-Store.

WHAT IS COMP-U-CARD?

Before we delve into Compunet, let's find how the original system works. Take the case of Joe Public who wants to buy a new telly. He phones the friendly Comp-U-Card operator to elicit more information.

Does Joe want a colour or monochrome model? Is he looking for a portable or a megascreen job with a remote gizmo and teletext? The operator swiftly feeds this data into the terminal and before you can say Sony Trinitron, Joe is told of all the models that fit the bill, together with a description and the price.

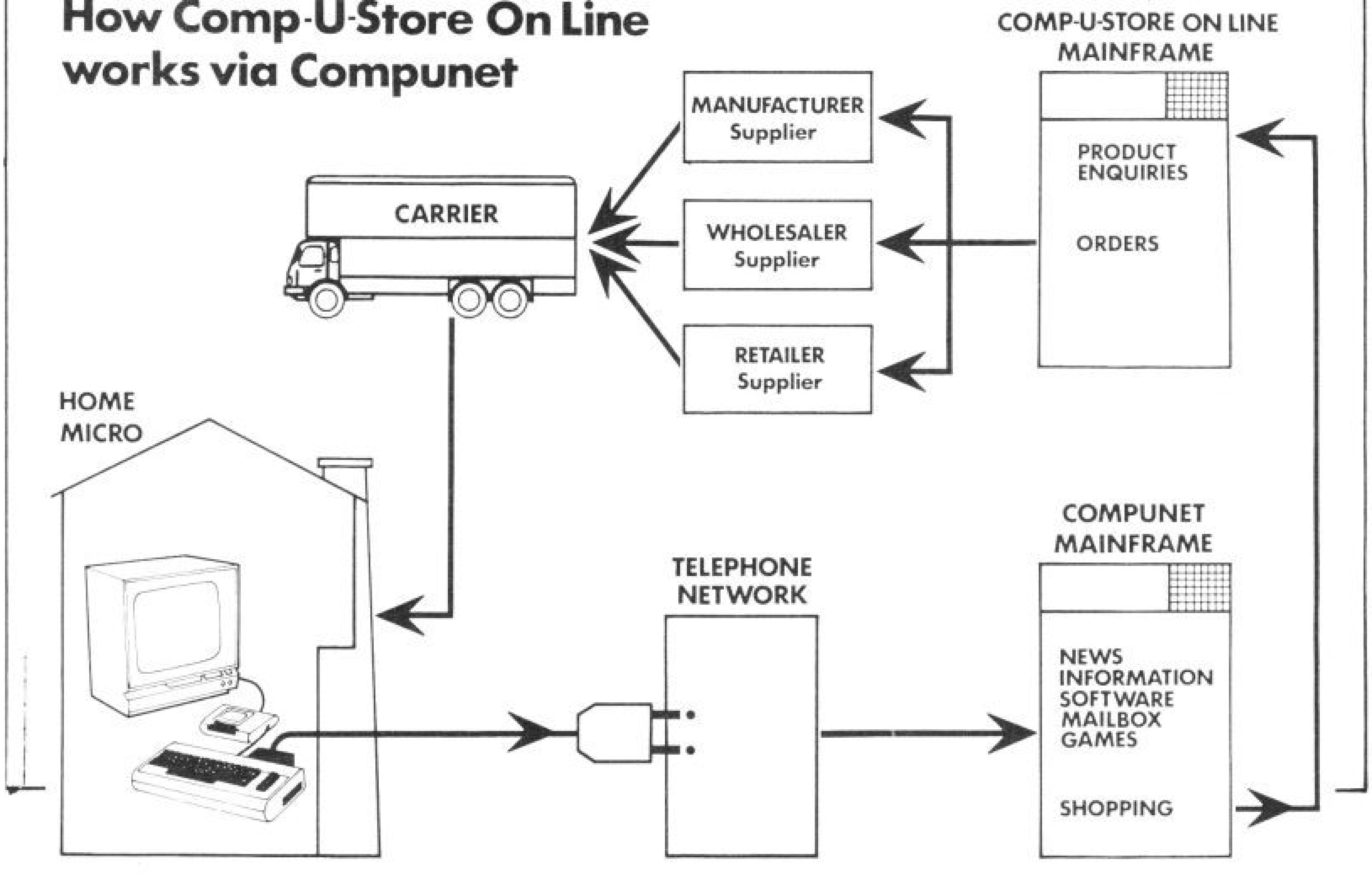
If the price is right, he pays either by cheque or credit card and his new TV is delivered to the doorstep within three weeks.

On the whole, British shoppers usually aren't so vague about their purchases and generally have a good idea of what they're looking for. So Comp-U-Card accommodates that by working in a number of ways.

A man wants to know the price of a lawnmower, but he already knows the manufacturer, model number and price. So he quotes that lot and immediately gets a price he knows is better than all the garden centres he's scoured. A successful sale.

A woman wants a Minolta camera; again she knows the model number. Comp-U-Card confirm they have it and quote a price. She notes it down and goes to check out the local camera shops. If she can't find it cheaper, she'll be back to order. If she can, then it's

How Comp-U-Store On Line works via Compunet



one nil to Dixons and time for Comp-U-Card to review its camera prices.

That probably doesn't happen often. Comp-U-Card has a good pricing policy and painstakingly logs members' comments. On that basis, some two thousand price changes are made each week.

If customers do discover that they could have bought cheaper elsewhere, the difference is refunded. Moreover, if you don't reckon you've saved your £20 membership fee by the end of the year, that also gets refunded — but don't bother joining again.

COMP-U-STORE

Now that you know what it's all about, how does the service operate on the Commodore 64's Compunet network? Comp-U-Card has been available on Compunet in the form of Comp-U-Store since January of this year.

Again you pay the £20 membership fee but what's exciting about doing it this way is that you gain access to exactly the same database that Comp-U-Card operators use for their phone-in customers.

Once on-line, you can use the program's search facilities to find the product you're looking for. The software is fairly user-friendly so there's little chance of getting bogged down and you should find what you're looking for easily and quickly.

To buy something you must enter your credit card details or send Comp-U-Card a cheque, though you'll have to wait a little longer for the delivery. Comp-U-Card will deliver anywhere in the country so there's no problem sending a piano to your aunt in John O'Groats — they'll even tune it for her.

COMING SOON

It can't be denied that Comp-U-Store is an exciting and useful application for your Commodore 64. That excitement is reflected in the attitude of John Slater, its well-built and well-dressed general manager. Despite the futuristic nature of the business, Slater is in no doubt as to where his responsibilities lie. "My job is to profitably exploit the Comp-U-Card concept", he enthuses.

And to leave us in no doubt what that means, he launches into a description of the schemes afoot to get a Comp-U-Card in your pocket.

One way of doing this is to expand the service itself. According to David Wilcox, the company's marketing man, the company is adding to its existing 20,000 product range at the rate of 200 per week. There's also plans to diversify the range into sports goods, clothing and eventually even cars — but will you get a test drive?

The company has already negotiated with TV rental firm, DER, to do a joint marketing venture. Rent a DER telly and get a special deal on Comp-U-Card. The company is also working on a deal with a major credit card firm: the dual purpose credit card. One side would be the usual credit card, and on the other (surprise, surprise,) Comp-U-Card. The idea is obviously to combine spending power with the actual means of spending it.

But the most revolutionary idea they've dreamed up so far is the Shopping Machine. A transatlantic import, the machine looks like an overgrown Space Invaders console, and is impressive enough for the likes of Tomorrow's World, on which it has just made an appearance.

It consists of an interactive laser disk video system and a terminal hooked into the Comp-U-Card database. You browse around what's on offer, get a video demo and if you decide to buy, you slip your little piece of plastic into the card reader slot — and hey presto. The device is already working and should be making an appearance in 'selected stores' by the autumn.

You'll find the link to Comp-U-Store on page 310 of Compunet. If the idea of teleshopping appeals to you, you can contact Comp-U-Card at George V Place, 4 Thames Avenue, Windsor, Berks. Tel: 07535 68191.

by Ken McMahon

BACK-UP PROBLEMS

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Enables the quick and easy creation of back-up copies of all Turbos, M/Code, Data Files etc. If your program can be loaded it will be transfered exactly on a second datasette. Does NOT require software or modifications to your computer. ORDER AS DCL1. Price **£10.00** (CBM 64 & Vic 20)

DCL4 Audio Recorder Interface
A deluxe DCL1 with added facilities so that back-ups can be made using one audio cassette and one datasette, or with two datasettes. LEDs indicate when data is being received from tape. This unit can be left permanently connected to the computer, the LED indicating when data is being sent from the datasette, very useful for finding the start of data. Ideal for anyone with only one datasette and one audio casette. ORDER AS DCL4. Price **£18.00** (CBM 64 & Vic 20)

1541 GT LOADER CARTRIDGE

1541 GT Disk Loader Cartridge
This CARTRIDGE will enable your 1541 disk drive to load approximately *4 times faster* and is compatible with most commercial software. Although there are slightly faster turbo disk loaders available, TRIGSOFT's GT LOADER is the only one (that we are aware of) that retains full disk error checking and as it is a cartridge it is alwsys available for instant use. Abbreviated LOAD/SAVE commands are 'built in' e.g. typing LOAD" filename will load file etc. Typing LOAD"$ will display the directory to the screen without affecting basic memory. An ON/OFF switch is fitted so there is no need to remove it in the unlikely event of software conflict. Just think, from the moment that you turn on, you will be able to load programs 4 times quicker. ORDER AS GTLOADER. Price **£20.00** (CBM 64 with 1541 disk)

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This reset unit plugs into your computer enabling a reset without erasing the program. ORDER AS RESET1. Price **£3.00** (CBM 64 & Vic 20)

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CLUB64 is a unique user group and as one of our aims is to make quality Public Domain software available at the lowest possible cost every new member may order free of charge any 3 disks from our excellent library.

Most disks feature between 10 and 30 programs. We have one of the best general purpose (300 and 1200 baud) communications packages available for the C64, a good cataloger disk, 6 COMAL disks, Disk Utilities, Educational software, games, graphics, music and tutorials.

Annual membership . . . £12 UK and Ireland. £15 Europe and £20 all other countries. We will accept cheques and Postal Orders and it should be noted that when you order the free library disks we will cover postage costs and supply the blank media.

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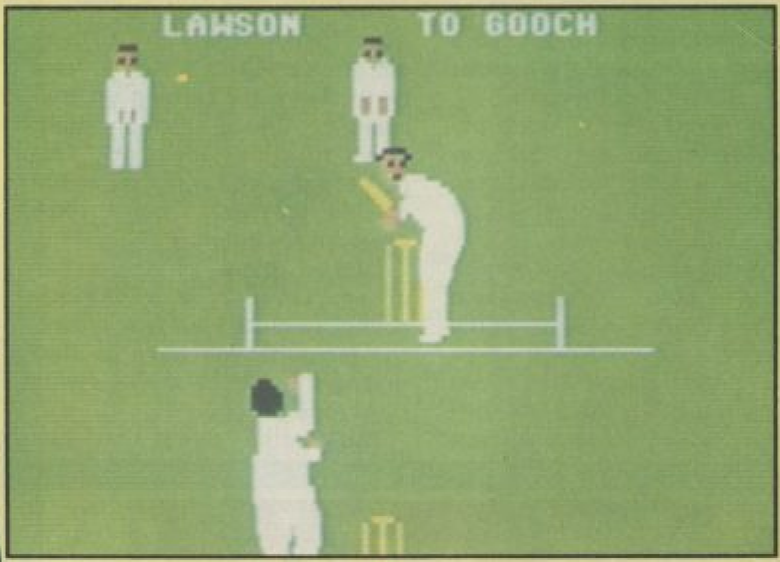
With Summer well and truly upon us, everyone who can wave a racket, throw a ball and cast a rod is out soaking up the sun and getting sweaty. This is reflected in our games this month. Activision are the main house who would make us down tools and stay in darkened rooms waggling joysticks. They're offering American Football, baseball and tennis. Our major sporting coup is a comparison of cricket games, with Supersoft's Graham Gooch's Cricket as the excuse. There's also a simulation of Britain's biggest sport — fishing. Our other scoop is an exclusive review of Melbourne House's exotically titled Way of the Exploding Fist, *a spectacular karate game. Also reviewed is Anirog's fighter plane simulator and a zapping game which lets you puff blowdarts at the nasties, Amazon Warrior.*

SCREEN STAR

Tim Love's Cricket
Commodore 64
Peaksoft
Price £8.95/cass

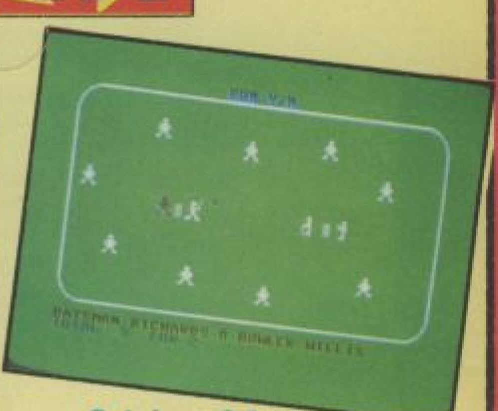
Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□





Graham Gooch's Cricket
Commodore 64
Supersoft/Audiogenic
Price £9.95/cass

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■□



Cricket 64
Commodore 64
CRL
Price £7.95/cass

Presentation:	■■■□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□

Supersoft's new release, exclusively previewed to Commodore User's cricket correspondent, has provided the excuse for a pixel and willow round-up of the available titles.

Old stalwarts are *Tim Love's Cricket* and CRL's *Cricket 64*, whilst the new pretender is *Graham Gooch's Cricket*. All three combine in some way simulation and strategy, however only *Tim Love's* and *Graham Gooch's* provide the extra element of arcade gamesplay.

Cricket 64 is the simplest of the three. It allows you to choose teams and then proceeds with a bird's eye view of a randomly generated game. You are asked after each shot whether you wish to run (Y/N) and you answer depending on the position of the ball and the fielder who is activated. The game is thus lacking in variation and not really to be recommended because of its constricting limitations.

The other two make definite attempts to provide as realistic an experience as can be digitally achieved. Gamesplay and scoring is as close to the real thing as possible. Where they differ is in the quality of the finishing and the attention to detail.

Graham Gooch's Cricket attempts to provide you with a dose of the real game. It has two modes: simulation and arcade. With the former you choose your sides and, on the information the computer already has about batting skill, bowling prowess and so on, a game will ensue that is as near to watching cricket as I could have thought possible.

Speed, atmosphere and run rate are all carefully imitated. Your only control is whether you wish to increase the aggression of the batsman or bowler. Otherwise you sit back and watch it unfold. It sounds a bit boring, but in fact it's so good as to be thoroughly absorbing. There is also an option to program your own team into the computer.

For my own part I was more interested in the arcade potential of Supersoft's game. And here is where comparisons can be drawn with Peaksoft's interpretation. When you bat in *Tim Love's Cricket* the bowler releases the ball and the screen scrolls to the other end where the batsman waits. On the lower skill level a dot shows the direction and pitch of the ball. You then move your batsman up and down the pitch. The ball tends to hit the bat which you simply move up or down. In comparison, in *Graham Gooch's Cricket* when the ball is bowled the batsman moves into position and his shot is determined by the timing of your strike upon the fire button. Good co-ordination will have your man cutting and pulling in text-book style.

The games are also distinguishable in the field. Whereas Supersoft's version moves men towards the ball without you doing anything, *Tim Love's Cricket* goes through a rather laborious process of choosing a fielder with the joystick each time the ball is struck.

What really separates the games is the graphics. *Tim Love's Cricket* is by no means poor, but the care and quality exercised over Supersoft's game is far superior. In *Tim Love's Cricket* the bowler is a blur of pixels as he runs up, whereas the stroke-making batsman in Graham Gooch is a smooth, fluid piece of graphics. It really is a joy to watch. The latter game also has sound along the lines of 'Howzat', and 'No ball'.

Tim Love's Cricket has proved very popular since it was launched and rightly so, but it'll have to step down now *Graham Gooch's Cricket* has arrived. Supersoft told their programmer they wanted a cricket game the equivalent of International Soccer and after twelve months' hard work they got it. M.P



Jumpjet
Commodore 64
Anirog
Price £9.95/cass
£11.95/disk

This is Anirog's Falklands inspired answer to *Fighter Pilot*. The F15 Eagle is replaced by Britain's VTOL Harrier Jump Jet.

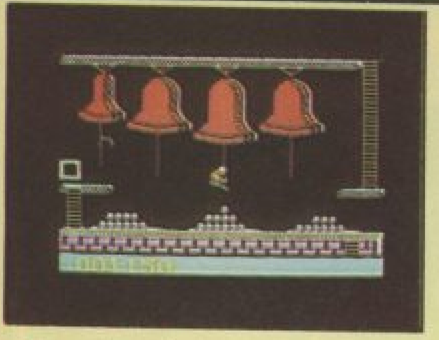
The first thing to note is the different controls and style that a jump jet has when compared to a normal fighter. Whereas the F15 and other jet aircraft gain lift from the wings and thrust from the jets, a Harrier's jets can be altered to point in different angles. This is reflected in the program.

The initial display is of your jet on the carrier waiting to take off. Lifting off is simple and once you have gained enough height you will see a split screen. Move off the screen and you see a nice seaview with scrolling clouds and lapping waves. It's advisable, though, to practice landing back on the carrier before you stray too far in search of trouble.

Instrumentation is, of course, crucial as in most flight programs. As you see from the screen shot you have all the normal dials for altitude and fuel and artificial horizon and so on. Don't forget to lift your flaps and undercarriage after leaving the ship and most important of all, you'll have to change from vertical thrust to 45° or forward thrust. Now you're ready to hunt the enemy down.

This is where the similarity to Fighter Pilot is most apparent. Your enemy is indicated on the radar by a small yellow triangle. Bank the plane round until the triangle is directly under the vertical line on the radar and set up your sight and arm your missiles by typing M. You have to bear in mind that the enemy has as good a weapons system as you so you can't mess around too much.

Once you're within a couple of miles the triangle disappears off the radar and you have visual contact. Follow your target quickly and smoothly. As soon as you have him even half in your sights fire.



Quasimodo
Commodore 64
US Gold
Price £9.95/cass

The box of *Quasimodo* proclaims in a pretty gold rosette that the game is a "US Gold/Ocean production'. Seems strange this, as Ocean have already produced a successful version of the popular arcade game — Hunchback.

A couple of minutes' play and you soon realise that the new game owes nothing other than its title to the famous Victor Hugo book.

No quest to rescue the angelic Esmerelda here — just a search for three jewels stolen bv the forces of evil.

To 'preserve mankind' you have to return the jewels to their rightful places before the soldiers in the castle pin you to the wall with one of their arrows.

The opening screen is excellent fun. It's one of those panic games where the soldiers are attempting to scale the ramparts. They are rushing up four ladders. Chuck cannon balls down to knock them off. This part of the game was over all too quickly for me. I could have played it for hours.

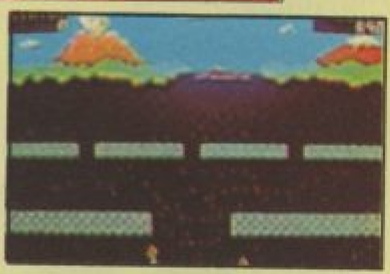
Luckily there is more fun ahead. Level 2 is a climbing scene. To make your way around the ramparts you have to start ringing those bells as you swing from rope to rope.

You would think that just about everything that could possibly be thought of to jazz up climbing games has now been thought of. Not so — as Quasimodo manages to come up with a really clever play element. When you swing on a rope you have to listen to the ringing of the bells. When it is really loud and fast you know that you have sufficient momentum to make your leap safely.

As you travel you have to place the stolen jewels in their cases. The third and final jewel is at the top of a rampart. You have to scale this — dodging the arrows from the soldiers above, and avoiding the bowls of boiling

SCREEN STAR







Beach-Head II
Commodore 64
US Gold
Price £9.95/cass
£14.95/disk

Having angered Birmingham's CND supporters with the controversial *Raid Over Moscow*, Bruce Carver is all set to do it again with the sequel to the enormously successful *Beach-Head*

Beach-Head II is another all-action, no holds barred, arcade-style war game. When I say war game I mean just that. This game has nothing to do with the movement of troops and masterminding grand military strategies. This is about combat. Just grab your joystick and get stuck in. Subtitled "The Dictator Strikes Back", this is a classic goodies against the baddies head-to-head.

Nowhere in the packaging does it specifically mention that the baddies are the Russians — it's just if you choose to be the baddies you control a red combat soldier. The "dictator" is holding Allied soldiers as hostages — captured in the first game — and it's your job to rescue them. To do this you must first send in your paratroopers to take the enemy machine-gun pill-box.

This screen features some pretty impressive speech synthesis — the first time this has been used in a Bruce Carver game. When a para gets hit he lets you know with an anguished cry of "I'm hit".

Even Bruce Carver himself is slightly concerned about the realism of this screen. "Some mothers may object to the realism of this scene . . . it's the only part of the game that caused me much soul-searching."

Once the paras have taken the gun they then have to get the hostages out of the compound. Dodge enemy flak, tanks and mines to free your countrymen.

If you manage this you go on to the chopper challenge where you attempt to get your men out. This is a bit of a gamble because the enemy can choose how tough an escape route to give you.

If you try to get them all out in one run then you risk losing them all if the Dictator gives you his toughest ride.

The final screen is a *Frankie Goes to Hollywood*-style con-

Graphics aren't as great as they might be, although they are more visually interesting than your average flight simulator. The novel aspect, though, is the sound produced with Anirog's own Voicemaster. You get 'Mayday! Mayday! I'm baling out!' and 'Welcome home!' when you land back on the carrier. All in all a good simulator but one which adds little to Digital Integration's *Fighter Pilot* except a change of scenery. M.P

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■

oil being flung from the windows.

A mere three levels of play doesn't seem like much in comparison with some of the huge arcade games now being launched — *Brian Blood Axe* and *Strange Loop* for example have several hundred each. That said, the little that is available in Quasimodo is of an extremely high standard. It's pretty simple but well put together and good fun to play. Bit pricey though at nearly ten quid. E.L

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■

frontation between the two leaders. Commander Stryker of the allied forces has tracked down the Dictator in his underground HQ. They face each other across a gaping chasm. By throwing Commando knives at your enemy you attempt to kill him — forcing him into the chasm with an *Impossible Mission*-like scream of ''Aaah''.

The first impression of *Beach-Head II* is likely to be one of disappointment. It lacks that one graphically superb screen — like the sea battle in version one — for a main selling point.

This is a pity because the game itself is much more playable than the original. The head-to-head option is the best way to play the game — giving you a totally different game depending on whether you play the Dictator or Commander Stryker.

Beach-Head II is as playable as *Raid Over Moscow* and more playable than *Beach-Head I*. Graphically it is not up to the high standard set in those two games, but if you loved mark I this sequel will not disappoint you. E.L

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■

SCREEN STAR

Way of the Exploding Fist
Commodore 64
Melbourne House
Price £9.95/cass

Way of the Exploding Fist is the first ever Karate simulation game. Inspired by the hit arcade game Karate Champ, ''Fist'' — as Melbourne House are calling it — looks certain to be a big hit with 64 gamers.

Arcade game conversions have been pretty thin on the ground this year so far. *Daley's Decathlon* was the last big hit that owed a lot to an arcade game.

With no less than sixteen different Karate moves to implement with your joystick this really does have the feel of the martial art.

Your objective is to become so skilled in the martial art that you win the ancient honour of ''Shaolin Monk''.

This will not be easy. Anybody who has ever done any karate will tell you that it is a long and competitive route to honours.

It is equally long and competitive in the game. Set in a tournament situation you pitch your skills against a friend or the computer.

Melbourne advise that as in the true way of the orient the way to outwit your opponent is not always through aggression.

Certainly speed of reaction is only a small element of the skills required to become a 64 Shaolin Monk. More important is to master control of the joystick to give you the maximum number of moves in your repertoire.

There are no less than eight different kicks to be mastered — representing the eight possible positions of the joysticks.

Some of these kicks are more difficult to master than others. The flying kick will take a great deal of practice.

There are also four different punches, somersaults, and blocks to master.

Some of these moves — when nicely executed — are truly spectacular. The use of large characters — about an inch and a half in height — enables you to see clearly each kick, chop, block, or punch.

All of this superb animation takes place against several scenes from the orient — beautifully drawn and full of the bright colours of the east.

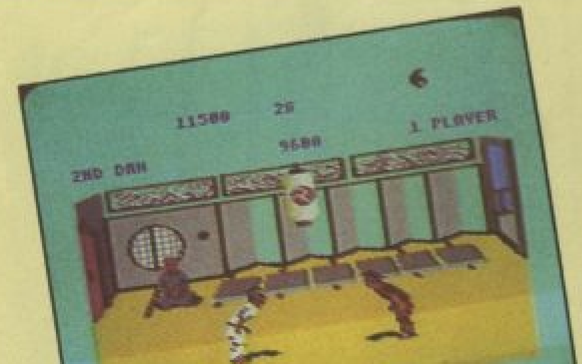
Add to this an authentic piece of Chinese-style background music, dull thuds as punches hit their targets, and shouts and cries from the opponents and you have one of the best games launched this year.

Must be a strong contender for an award. L.S

Presentation:	■■■■■
Skill level:	■■■■■
Interest:	■■■■■
Value for money:	■■■■■





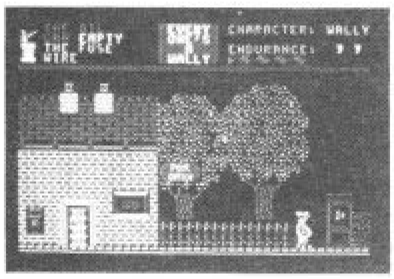


Top: opening scene before the Pagoda

Centre: squaring up on the beach

Bottom: final screen — inside a Chinese restaurant in Soho(?)


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Everyone's a Wally
Commodore 64
Mikro Gen
Price £9.95

Mikro Gen have taken five Wallies and one Wallette and built an arcade adventure around them.

Wally made his first appearance in *Automania*, and *Pyjamarama*. He has now been joined by Wilma, Herbert, and Tom, Dick, and Harry to form the Gang.

The Gang are Wally's family and in this game he has to break into a safe in the local bank in order to get money to pay them for work they have carried out for him.

First each character must do his work. Wally is 'the gaffer' and he must see to it that Dick the plumber, Tom the punk mechanic, and Harry the hippie electrician all get their work done.

Wilma is Wally's wife and she has been given the job of shopping (don't bother to write and complain girls. These guys really are Wallies. They think being sexist means they might have an outside chance of appearing on page 7 of their favourite news paper as a Sun Fella).

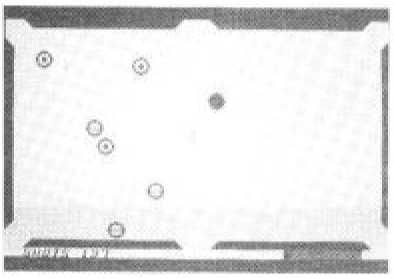
Herbert is a baby and he is no use to you. Avoid contact with him as he drains your energy.

The individual tasks are the main play-challenge of the game. And pretty tough they are too. For each job you first have to assemble the tools you need. In many cases you will have to find your way around Wallytown to locate them.

It would spoil the game if I were to tell you how to work out any of these puzzles, but the Wally song on the flip side of the cassette is worth listening to.

It was a difficult job to make a game based on something as contrived as Wallyism but Mikro Gen have managed it admirably. E.L

Presentation: ■■■■
Skill level: ■■■■
Interest: ■■■■
Value for money: ■■■■



Hustler
Commodore 16
Bubble Bus
Price £6.95/cass

If *Daley Thompson's Decathlon* or *Jonah Barrington's Squash* sound a bit too energetic for you then perhaps *Hustler* is more your kind of armchair sport. The nearest your likely to get to Dennis Taylor's snooker, Hustler is a pool-type game converted from the 64 on which it was immensely successful.

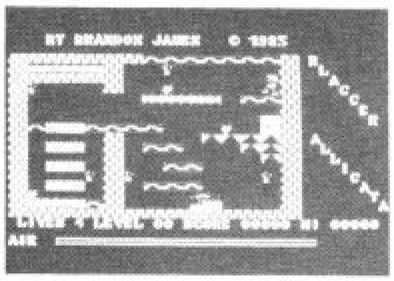
As conversions go it's hard to fault. The graphics and colour, as before are excellent and, as on the 64, six different game options are available. There are three games for one player and three in which two can participate. The degree of difficulty varies in the different games.

If you're playing on your tod you get the option to put any ball in any pocket, pocket the balls in order, or put each ball in a particular pocket. Two players get a slightly more interesting scenario. Each ball in its own pocket, mini pool — like the real thing, or a game where one player pots the balls in ascending order the other in descending order.

Cueing is executed by positioning a cross over the ball and hitting the fire button. You can apply side and screw by using the function keys.

Similar games had a spate of popularity in pubs about three years ago. Unfortunately, it only lasted about three weeks, I guess people decided they preferred The Real Thing (that's the one where you end up arguing about the rules). As that option doesn't usually exist in your living room I think Hustler will have a more lasting appeal. K.M

Presentation: ■■■■
Skill level: ■■■
Interest: ■■■
Value for money: ■■■



Blagger
Commodore 16
Alligata
Price £6.95

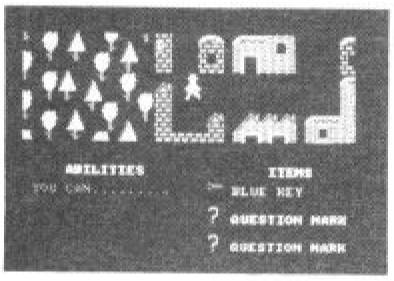
Seems like the software houses can't convert their successful 64 games to the 16 quick enough. This of course is nothing but good news for games hungry C16 owners. The latest piece of good news comes in the form of *Blagger*, from Sheffield software house Alligata.

It's platform time again as you are cast in the role of Roger the Dodger. Not the naughty Beano boy, but the even naughtier, not to say villainous master burglar. You must work your way from screen to screen collecting the golden keys located in the usual incredibly inaccessible places.

Once all the keys have been collected it's off to the safe which gains you access to the next screen. Points are awarded per key collected and a bonus is given for completing a screen in superquick time. Roger, having four lives is obviously no cat burglar (sorry), but gains an extra one for every ten thousand points scored.

To be honest I find these type of games infuriating and at times utterly soul-destroying. It takes you half an hour to work out exactly when and where you have to jump to avoid being zapped by some gremlin or other, nonchalantly strolling around the screen. Then when you do work it out it's on to the next screen only to be wiped out in a matter of seconds due to total ignorance of what's coming at you and where it's coming from. Then you're back to square one and it's no easier the second time around, or the two hundredth for that matter. Still, I suppose that's the appeal of it really. Blagger's great and I'll play it till the cows come home, but I hate it. K.M

Presentation: ■■■■
Skill level: ■■■■■
Interest: ■■■■
Value for money: ■■■



The Captive
Commodore 64
Mastertronic
Price £1.99/cass

"The Prisoner", as the author now signs himself, also wrote Spooks and I can't help but notice his fingerprints all over this follow-up. The format is so similar that the two programs could be Siamese twins — not that that matters if you drool over puzzle-trail style games.

After the title page has faded away you find your alter ego standing in the middle of the Glen of Coloured Corpses, wishing he was somewhere else.

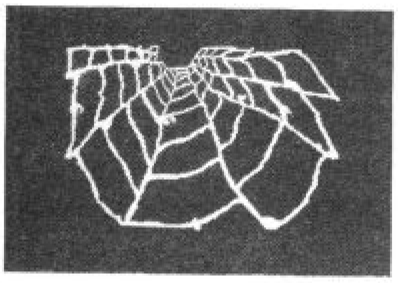
That's where your acumen as an arcade adventurer really comes into its own for you realise that by careful acquisition and use of objects and artefacts plus full mobilisation of your pathfinder capabilities, a way out can be found. Hitting the fire button or the space bar switches the control modes of command and inventory

The display switches from a four-way scrolling representation of the unfriendly environment, tangled woods and old buildings, both hiding the lurgie messengers of doom, and the command action screen.

Various fruits can be picked up to sustain you on the journey to the castle, which apparently is the gateway to civilisation, as well as three objects to help you surmount the sundry obstacles. Now what would you do with a blue key?

Confirmed adventurers will look down their noses at this one. Obviously it is aimed at the gamester who is ready to splash out £2 just to sample life beyond blasting and as such it's not a bad introduction to that style of game. L.S

Presentation: ■■■
Skill level: ■■■
Interest: ■■
Value for money: ■■■■■



Web Dimension
Commodore 64
Activision
Price £10.99

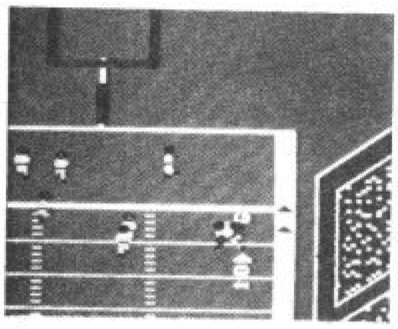
Web Dimension is difficult to pigeonhole because, like *Psychedelia,* to which it has similarities, it doesn't drop into any convenient categories. Activision describes it as an 'evolutionary experience'. There is no beginning, no end and no rules, all of which is rubbish, because there is all of these things.

There are three phases all based around the web of the title. You begin with a grey web and a number of organisms which shift around it, painting colourful paths as they go. You have a musical note which you move around with the joystick. Your object is to reach the nodes of the web before an organism does, thus freezing it. That's not quite as easy as it sounds, because should you run into the coloured path of the organisms there's a burst of light and you're back to the beginning. Immobilise them all and it's on to the next phase.

In Phase two the web is blue and you have to stabilize the energy clutters by moving over them. This time you're painting the coloured trail, and if you cross it you get that cosmic flash of light.

The final phase includes level after level of sparkling creatures and groovy music, evolving from the web. Wacky. Quite whether it has any lasting appeal I'm not sure, the colours are good and the music is, as it was in *Rock 'n' Bolt* excellent, but its lack of any really appealing gamesplay may prove limiting. If a truly addictive little game was lurking among all that sound and colour I'd say it was a great game, but it's just a rather expensive novelty. M.P

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■



On-field Football
Commodore 64
Activision
Price £10.99

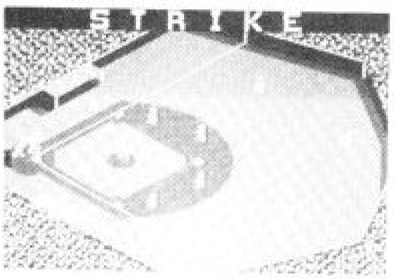
American Football is a minority interest in the U.K. to say the least. Can there be more than a handful of joystick-sportsmen to whom this ball game will have more than curiosity value? Clearly Activision think so.

It has been described as brutalised chess, or thuggery for the thinking man. Despite whatever happens on the grid, by the look of the crowd there certainly won't be any spectator violence because they're just a mess of colour, present just to fill up the edges of the screen. The music is also on the pathetic side. But that's the end of the bad news.

The nitty-gritty area is well-presented with an aerial ''end-to-end'' view giving good perspective awareness. To unclutter the action zone only four players constitute each team (the cyans & the yellows) making passing and blocking a viable proposition. Various players, each with their own capabilities may be selected but that facility is only of use to dab hands.

The accompanying mini-booklet outlines offensive/defensive positioning and the basic moves which spring from the continuous scrimmages (alas, not a bit like Rugby Union). All this takes some time to grasp as the play options are manifold. Failing that, you can relax and watch the demo. Once you really know your way around the many joystick-directed commands you had better collar a friend because the computer possesses variable response so if you're on top, the 64 steps up a gear. If you enjoy gridiron foootball then this game is a faithful rendition. L.S

Presentation:	■■■■
Skill level:	■■■■■
Interest:	■■■
Value for money:	■■■



Star League Baseball
Commodore 64
Activision
Price £10.99

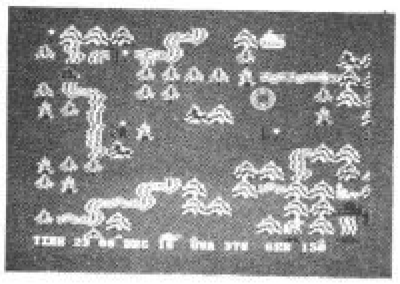
Another offering of America's best-loved sport. For ease of playability and general presentation Imagine's *'World Series'* edges this one out. The giant video screen featured in the former makes life a lot easier for pitchers and batters alike, bearing in mind that the vast majority of us limeys are emerald green in baseball techniques. More flippantly you can also designate the teams' strips on Imagine's version instead of being stuck with yellow and white as in this latest import.

There is compensation though, in the gameplay, with a goodly range of nuances in batting and pitching styles on offer, dependent on the qualities of the players you nominate in the options phase. Then again, who is going to get that involved in a sport we let go to our American cousins ages ago? To most armchair sportsmen the extra facilities will be padding.

The game switches between a camera-up-in-the-stands full perspective view of the pitch (referred to as a diamond, I believe) and the score board. All movement appears to be in 3D with a shadow on aerial balls. It's up to you to develop all round playing skills, including snappy fielding — dithering turns the whole thing into a farce.

All eight switches on your joystick are used in combination with the fire button, so it takes a bit of sorting out before the action flows smoothly. Two players of similar abilities are needed for a competitive game although the 64 will act as a tough stand in. As a bonus there is a batting practice mode for sneaks to steal a march on prospective opponents. A good simulation, but not in Imagine's league. L.S

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■
Value for money:	■■■



The Bulge
Commodore 64
Lothlorian
Price £9.95/cass

Lothlorian's game allows you to replay the battle of the same name fought over Antwerp in 1942 with the choice of being either side or, for two players, both. Whichever side you choose, you will have complete control over divisions of tanks, infantry and artillery.

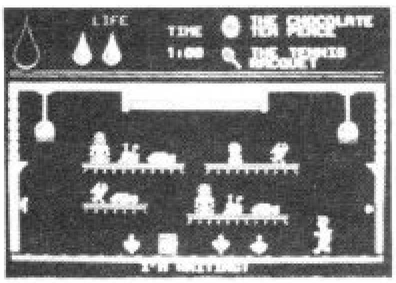
Action takes place on one screen which represents the terrain and identifies troops of both sides. A cursor sight allows you to scroll over the map which is several screens square. Pressing the fire button displays more information concerning the identity and size of the unit.

You get to grips with the enemy by using the cursor and placing it over the symbols you require. It will then light up a different colour. Hit the fire button and it will display its status information. To move it, move the cursor to where you want it to go. A flashing white cursor tells you if it already advancing. Units that come into contact automatically engage. You are informed as to the outcome of each skirmish. Armour stands a better chance out in the open and infantry when in a town.

Points to bear in mind are to secure your fuel dump at Spar if you're fighting for the Führer or you'll move and fight at half strength. The key to this absorbing game, though, is information. You must keep constant tabs on what the computer is telling you.

The Bulge is an engrossing realtime simulation that I guarantee will keep you stuck to the keyboard for longer than most of the tedious rip-off games currently going around at the moment. A good addition to your library of wargames and well up to Lothlorian's normal standards. M.P

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■



Herbert's Dummy Run
Commodore 64
Mikro-Gen
Price £9.95

Baby Herbert was just an extra in *Everyone's a Wally*. Now he's grabbed the starring role in his very own game.

The screenplay goes like this. Wally and Wilma have taken our little starlet to a department store. Herbert toddles off by himself and gets lost among the merchandise. You've got to get him back to Lost and Found, where mom and pop are biting their nails, before the store closes at 5.30.

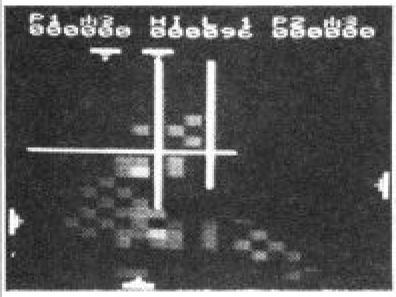
Some screens are actually games themselves. One, for example, involves Herbert playing Breakout with a tennis ball. Another finds him zapping daleks with dummies.

To proceed through the various departments, he must complete the games and pick up a variety of objects — some of them he'll need to actually start playing. But what he needs and what he must do with them is not all that obvious. What do you do with a brick and even a bomb? True Wallies will struggle.

To make matters worse, there's a whole load of 'things' that Herbert must avoid. Bump into them and the tears start flowing. But bags of jelly babies and other goodies are sprinkled around and Herbert's progress is rewarded with them — never mind the tooth decay.

Despite the well-worn structure, the game is very good fun: plenty of variety, lots to do and think about, and deceptive levels of difficulty. Better still, the graphics are bold and very well designed. The programmers have avoided the trap of cramming the screen with vague graphics — Herbert is no fuzzy mass of pixels. There's music too: "Baby Face" — only a wally would think of that. B.B

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■■



Fourth Encounter
Vic 20 (+8K)
Sparklers
Price £2.50/cass

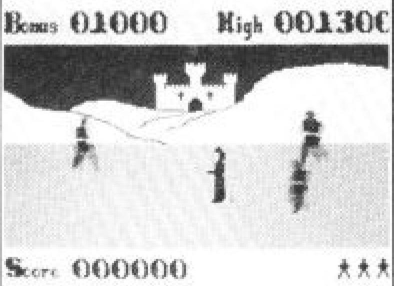
I hate to keep reminding you out there but these days any Vic release has to be taken seriously and, if it passes muster, it should be snapped up.

"The fate of the world is in your hands," it says on the press release . . . oh good, I rather hoped it would be. Aided by text book kapows and energy particle pixels you have to blast your way through three fairly standard galactic armadas and one novel screen.

Kamikazes populate the first phase which give way to hovering bombers after your mopping up exercise. Surprisingly enough, screen three forces you to zap away replicas of your own craft before meeting the final terror. Placed inside a rectangle you need to dodge the slowly decaying laser beams of the X,Y zappers. Pick your way with care as you try to pack in the killer punch . . . an interesting challenge, that one.

Ideal for latecomers to the galactic battlefront, representing blindingly good value to trigger happy Vic owners, with a two player option thrown in. L.S

Presentation:	■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■■■



Taskmasters
Commodore 64
Sparklers
Price £2.50/cass

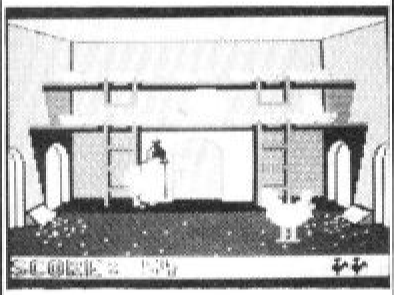
If your software cupboard is nearly bare and you have £2.50 sloshing around in your pocket then this "questy" flavoured shoot-out is waiting for you.

The urge driving you on to ever more outstanding feats of zapping is the prospect of storming the Birdmen's castle after which everyone can live happily ever after.

I encountered zombies which I had to fend off until daylight returned, followed by a brush with a wizard deep inside a forest. Next I had to pick up tokens under the threat of vampires flapping out from a handy cave before whisking off to a Stonehenge scenario where the hooded priests made short work of me. There are at least two other battle arenas on hand for those with sufficient interest.

A cut above the average basic shoot-'em-up simply because you can amble around a screen with real depth to it. Each setting has its own theme, scenery wise and you also get customised lettering. A decent cheapie. L.S

Presentation:	■■■
Skill level:	■■■
Interest:	■■
Value for money:	■■■■■



Chickin Chase
Commodore 64
Firebird
Price £2.50/cass

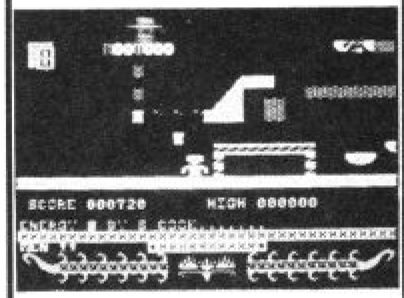
An invitation to stack up a staggering score within the confines of a henhouse has been extended by Firebird. The heroes may only be paltry poultry and the price mere chicken feed, yet the game is definitely not bottom of the pecking order.

Just as in the savage, harsh world of free-range Sussex Lights, your mission as cockerel is to gobble up as much corn as possible, slip down the odd worm, shoo off vermin with vicious pecks and er, well . . . sort of perpetuate the species.

Strutting around your domain, you must be on the alert for various egg-eaters like rats, stoats, snakes, hedgehogs and badgers.

As matrimonial duties leave a rooster somewhat drained, there's an urgent need to rebuild your fighting strength by tucking in. If you prove quite good at being a protective dad and loving hubby there will be quite a procession of yellow chicks tripping down from the nests, if not, watch out for the rolling pin . . . BOING! Could prove quite catchy to barmy game-lovers. L.S

Presentation:	■■■■
Skill level:	■■■
Interest:	■■
Value for money:	■■■■■



Circus Circus
Commodore 64
Firebird
Price £2.50/cass

There must be a vast reservoir of machine code exponents beavering away at copies of Manic Miner and subsequently pelting the software companies with the results of their labours.

Frankly I've had my fill of them, right up to the eyebrows. Intense boredom gripped me like a vice after the inviting title frame was replaced by the all too familiar array of platforms and hero-squelchers, gyrating predictably at regulation intervals.

Don't get me wrong; there have been examples of the idiom which have tickled my fancy like some of Software Projects' titles, Beyond's *Mr. Robot* (still dig that one out) and *Cave Fighter* from Bubble Bus.

Just to show there's no hard feelings, though, you take on the persona of a circus strongman with the ability to make astounding leaps. The rest you can easily guess. There's twenty screens (sorry, I should have said circus rings) to be hopped through. Can you reach all the exits and defy the horde of spritely spoil sports? L.S

Presentation:	■■
Skill level:	■■■
Interest:	■
Value for money:	■■■



The Rocky Horror Show
Commodore 64
CLR
Price £8.95

Games based on well-known films or books actually have little or nothing to do with their originals. To its credit, CRL's *Rocky Horror* tries to introduce elements that Transylvanian transvestite fans will recognise.

As either one of the lovers Brad or Janet (you choose), you explore the rooms in Dr Frank,n,Furter's castle to find the pieces to rebuild the De-Medusa machine — you know, the one that will save your turned-to-stone partner. Meanwhile, a load of wacky weirdos wander round to do nasty things to you. Some of them zap you, others just take your clothes off — hmm, well it was an adult film.

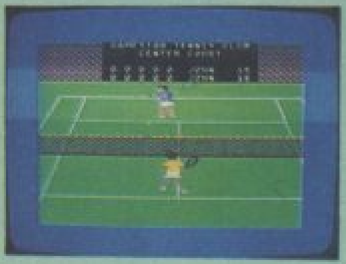
Since the instructions tell you just a few words more than nothing, merely finding out what to do will keep you gripped. Like what happens when Eddie thaws out and comes out of the freezer, and can you stop him? What do you do when you've been stripped of your smalls?

Then there's the trickier problems: like how to turn off the laser beam to get into the labs? Who is that maniac on a motorbike? Why must you be careful in the evil Doc's bedroom?

And there's plenty of screens to explore, with reasonable graphics and the usual time limit to contend with. A commendable rendering of one of the Rocky Horror tunes (the Time-Warp song) plays throughout. One nice touch is that you shuffle along sideways when you're clothes have gone.

So finding out is what it's all about and there's plenty of that to do — but true Rocky fans won't give up that easily. B.B

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■□□



On-Court Tennis
Commodore 64
Activision
Price £10.99

Summer games are pouring out at the moment and Activision seem to be responsible for more than half of them. This is their effort at tennis.

Choose a persona from the options available: John Ringler, Bjorn Urrin, Jimmy Orr and Ivan Messier and you'll possess talents applicable to that player. It's fairly obvious who they represent I think you'll agree. Thus if you choose Jimmy Orr you'll have a great backhand and serve, but poor endurance.

Next you choose the surface you're playing on, which again imitates the real thing, with slow clay and fast grass. Sort out your options and you're ready to play. It would be difficult if you had to move your player to the ball and swing, so your man automatically positions himself, and then it's up to you to time the swing. It's not quite that easy because there are a variety of different shots you can play just by moving the direction of the joystick. For example, pulling back will make your man lob. If the ball is lobbed by your opponent, you automatically smash it, but timing and direction are important.

Serving has a similar approach to rallying. Your player throws the ball up automatically, and you move the joystick to hit it. As before you have control over depth and direction of shot. So it all sounds very simple, and in effect it is — the mark of a good game, rather than a bad one. You don't have to spend ages trying to master what to do rather than how to do it. A good sports simulation with more than adequate graphics. Pity about the price, though. M.P

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■□□



Amazon Warrior
Commodore 64
New Generation
Price £7.95/cass

This program takes you deep, deep into the threatening Amazon jungle. You are a native and all you have to protect you against multitudes of nasties is a blowpipe and a loin-cloth.

The game takes you through three phases of jungle, crystal caves and a ruined temple. Phase one pits you against flying snakes, black scorpions and headhunters. You only have a limited supply of darts and you've got to make them count, especially against the headhunters. These boys are out to get you.

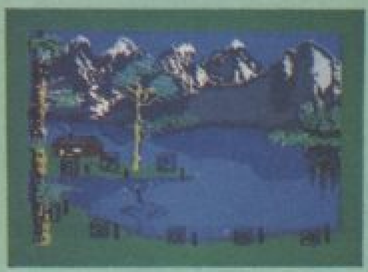
Sooner or later, though, you've got to puff a dart into them. The disappointing thing is that nothing really happens except that they run away again. At each phase you must kill off a specific number of your enemy before you can progress on to the next.

The novel touch to what is simply a scrolling shoot 'em up is the blowpipe. Pushing the joystick forward loads it, then you have to position it quickly. That said, there's nothing at all spectacular about this game.

Considering it's programmed by a musician the tune doesn't exactly make you hum along. The graphics aren't up to much either. The scrolling background repeats itself rather quickly, but is actually quite impressive by the time you reach the ruined temple.

Perhaps that's your reward because by the time you've rid the Amazon of nasties, you have to face a Quetzalcoatus, a kind of blue pterodactyl. Kill that and you just go back to the start on a harder level. Disappointing I think you'll agree. M.P

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□



Jack Charlton's Match Fishing
Commodore 64
Alligata
Price £6.95/cass

Alligata has dragged in big-name Geordie Jack Charlton to provide charisma in a game that substitutes laser blasters with a fish-hook. Needless to say, — he's conspicuously absent from the riverbank.

Up to eight people can play this game, and you'll need that many to capitalise on the minimal action. Players are each given a 'peg' (a position by the water), each one having different 'swim' conditions.

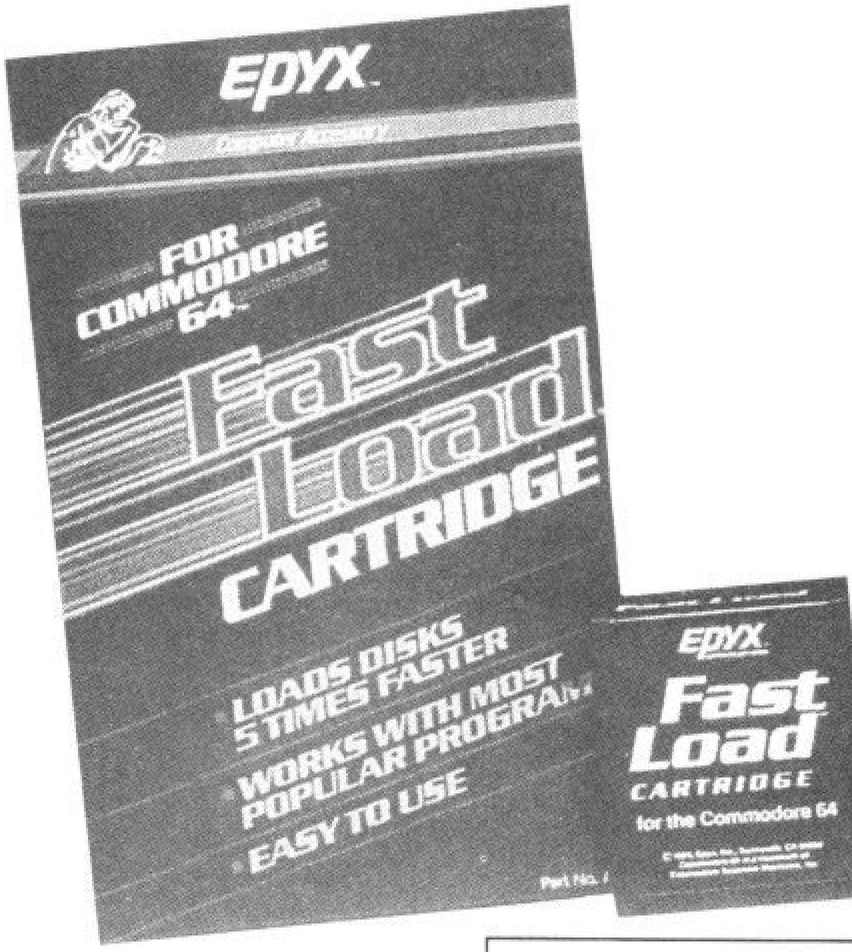
When you've read all the peg descriptions, you're asked to choose your tackle. There are three rod options (ledger, float or pole), choice of fixed spool or centre pin, nine types of bait, a variety of hook sizes and control over length of cast.

The idea is simple: when your peg number flashes you hit the appropriate number. You then see a cross-section of the bank, with a fish swimming towards your hook. Press the spacebar to hook it.

If you tactics were sound, you catch it, and then get details of the type of fish and its weight. If it gets away, you get a hint of what you did wrong. Tactics can be changed at any time, and peg descriptions re-read. When the time's up, each player's catch is displayed with the total weight.

The game is gentle as the gentle art of fishing itself and definitely not for fast action freaks. Although the mere mention of bream, tench and gudgeon should make the true angler's sap rise, I'm not sure that employing even the shrewdest tactics actually helps your catch. Even a random choice of tackle gets you lots of bites. Admittedly they were tiddlers — maybe the big ones are getting away? B.B

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■□□□
Value for money:	■■■□□



1541 GRAND PRIX

Epyx Fast Load cartridge reviewed

Devices that speed up the 1541 disk drive are invariably fiddly to install. Remember 1541 Flash!, reviewed last month? Now American software house Epyx has come up with a no-fuss cartridge that simply plugs into the 64. It's easy to use but how well does it justify the £50 price-tag?

by Jeremy Hall

The main problem with hardware devices that make the 1541 disk drive do its job a little more quickly is that they're invariably a little difficult to install.

The **Epyx Fast Load** cartridge is the third of these types of devices now available and looks to be the easiest to set up. You merely plug the cartridge into the 64's cartridge port and you're up and running. No fuss, no wires.

So let's take a short look at the other two. *1541 Express* is also a cartridge costing £50, but it requires two wires to be installed inside the 64. That may discourage the faint-hearted and may invalidate your warranty. Unlike the Epyx device, though, 1541 Flash! also speeds up the saving of data.

More complex is *1541 Flash!* (reviewed last month), which involves prising out and installing alternative chips in both the 64 and 1541. There's a few wires to contend with, too. Unlike the Epyx device, it saves data at speed, offers extra facilities and since it's not a cartridge, it frees the cartridge port for other uses. It costs more at £80.

SPEED LOADING

The Epyx Fast Load device is simple, but is it effective? Loading speed is, quite simply, impressive and reliable. For example, a 182 block program file, which would usually take about 120 seconds to load, actually loads in 25 seconds. That's around five times the normal speed.

Unfortunately, as its name suggests, the cartridge saves files only at the normal speed. But, if like me, you spend most of your time loading software, the savings on time and frustration are appreciable.

Although the cartridge isn't guaranteed to load every type of protected disk, it certainly handles a lot of them. *Vizawrite*, for example, makes the device revert to normal loading speed. So if the cartridge won't work with a program, you simply use the built-in disable facility. No need to switch off and unplug the thing.

MORE FACILITIES

A lot more than just increases in loading speed is offered; the device is also easy to use. To do the equivalent of LOAD "0:*",8,1 you simply hold down the CBM key and hit RUN STOP. To load the disk directory, simply type "$" and press Return.

The "@" can be used to send any command to the disk, or by itself to tell you the status of the drive. Yes, now you'll know why the red light is flashing.

Obviously you can use the standard load/save commands provided but there are some useful single-key commands offered as alternatives:

%PROG replaces LOAD "PROG",8,1
/PROG replaces LOAD "PROG",8
←PROG replaces SAVE "PROG",8

MONITOR

Also provided on Epyx Fast Load is a machine-code monitor, which can be entered by simply typing "!" and pressing Return. The monitor allows you to get to grips with all of the 64K of RAM.

If that weren't enough, the cartridge has a built-in disk and file copy facility which can be accessed via two menus. Although these are quite simple in operation they are nevertheless a useful addition. There's also a simple track editor which allows you to read any sector on the disk, edit it on screen and then write it back to the disk.

The documentation supplied with the cartridge consists of a single sheet of glossy paper folded in half, with all the commands and facilities listed in a comprehensible way. It's not brilliant, but it tells you all you need to know.

CONCLUSIONS

On the whole, the Epyx Fast Load cartridge does its job extremely well and offers a load of other facilities into the bargain. Unlike most other 1541 speed utilities, it's childsplay to install. Must be good value at £49.95.

- **Epyx Fast Load cartridge**
- **distributed by: The 64 Software Centre 1 Princeton Street London WC1R 4RL 01-430 0954**
- **£49.95**
- **good value for money**

MOONBASE

Cast yourself in the role of an interstellar salvage operator whose task (should he decide to take it) is to retrieve unmanned satellites from their lunar orbit.

Your monitor display shows the lunar landscape as seen from the Control Centre window. Lost and lonely satellites zoom overhead, within range of your radar scanner. A flash and a beep — and it's you to the rescue.

Just type the program in as listed — full instructions appear on the screen.

```
2 IFPEEK(12289)<>124THENGOSUB2000
5 POKE52,48:POKE56,48:CLR:GOSUB200
6 PRINT"[CLS][REV][RED][8SPC]MOONBASE CONTROL CENTRE[9SPC][OFF]"
7 FORA=0TO40:X=INT(RND(1)*629)+200:POKE1024+X,46:POKE55296+X,15:NEXT
10 POKE53280,2:POKE53281,16
11 M=700:V=100:P=500:H=1000:SH=200:C=53248:J=56320
14 PRINT"[HOM][2CD][CYN]SPEED[4SPC]","ALTITUDE","[3SPC]FUEL","RADAR"
15 PRINT"[YEL] 150[7SPC]1000[8SPC]5000[4SPC](.)"
16 PRINT"[CYN] MPH[5SPC]","[2SPC]FEET[2SPC]","[3SPC]GALLS"
17 PRINT"[40G>*]"
18 PRINT"[HOM][20CD][GRN][G<P][G<I][G<O] [REV][G>£][G<*][OFF][3SPC][REV][G>£][G<
*][OFF][2SPC][G<@][G<P][G<O][RED][5G<I][GRN] [G<O][2SPC][G<O][2SPC][G<P] [REV][G
>£][G<*][OFF][3SPC][REV][G>£][G<*]"
19 PRINT"[REV] . [G>N][2SPC][G>J][G>*][G>K][2SPC][G>M][4SPC].[4SPC][G>N] [G>J][G
>K] [G>M][2SPC][G>N] [G>J][3G>*][G>K] [G>M][2SPC]";
20 PRINT"[REV][5SPC].[7SPC][G>J][G>*][G>K][5SPC].[10SPC][G>J][G>K][4SPC][G>J][G>
K]";
21 PRINT"[REV] [G>J][4G>*][G>K][4SPC]-[7SPC][G>J][G>*][G>K][2SPC]-.-[7SPC]- - *
[HOM]"
22 POKEC+21,0:POKEC+39,1:POKEC+40,7:GOSUB1000
23 POKE2040,192:POKE2041,194:POKE2042,193
25 POKEC+27,3:POKEC+3,0
26 POKE54273,0:POKE54272,0:POKE54296,5:POKE1176,81:POKE55448,5
27 X=INT(RND(1)*3):K=5
30 IFX=1THENSX=SX+INT(RND(1)*3)
31 IFX=2THENSX=SX-INT(RND(1)*3)
32 IFSX>255THENSX=255
33 POKEC,SX:POKEC+2,SX
35 IF(PEEK(J)AND1)=0THENK=K+1:POKEC+21,3:GOSUB600:GOTO39
36 IF(PEEK(J)AND8)=0THENSX=SX+3
37 IF(PEEK(J)AND4)=0THENSX=SX-3
38 K=K-2:IFK<0THENK=0
39 IFK>5THENK=5
40 F=K*1000
50 D=(F/M)-2
60 V=V-D
70 H=H-V:SP=SH-(H/5):IFH=>0ANDSP=>0THENPOKEC+1,SP:POKEC+3,(SP+10)
80 U=(F/50000)*250
90 P=P-U
91 PRINT"[HOM][3CD][YEL][31SPC](.)[3SPC]"
100 M=M-U:POKE198,0
101 IFH<0THENH=0
102 V%=V+10:H%=H:P%=P
110 PRINT"[HOM][3CD]"V%,H%,"[2SPC]"P%*10
116 IFH<1ANDV>10THENGOSUB500:GOSUB800:GOSUB830:GOTO125
117 FORA=1TO150:NEXT:IFSX>149ANDSX<181THENPOKE1176,81:POKE55448,5
118 IFH<1ANDV<10ANDSX>150ANDSX<170THENGOSUB800:GOSUB870:GOTO126
119 IFP<1THENGOSUB500:GOSUB800:GOSUB850:GOTO125
120 POKEC+21,1:POKE54273,0:POKE54272,0:GOTO30
```

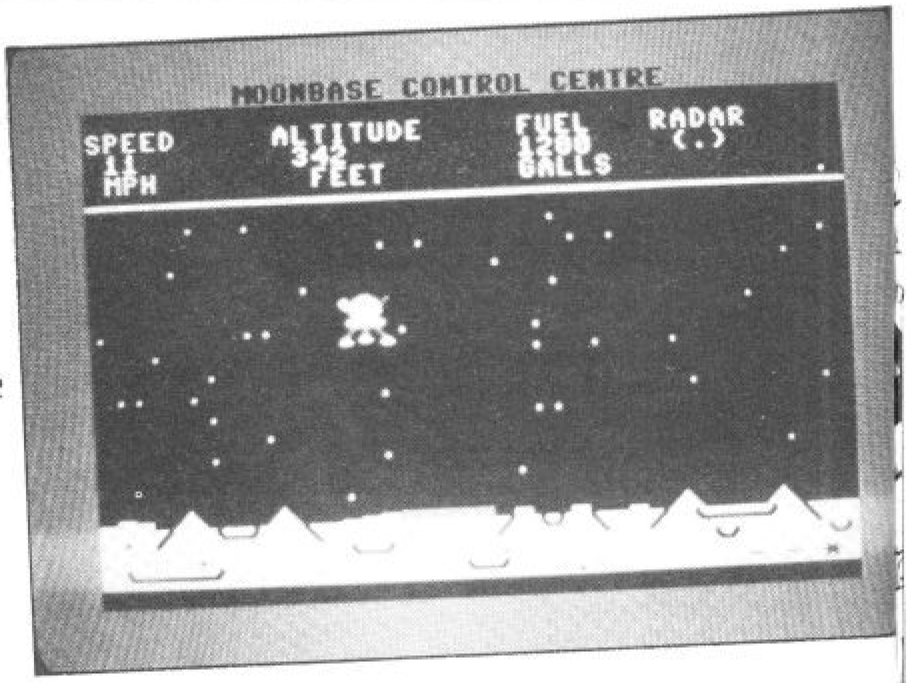
```
125 POKEC+21,0:GOTO130
126 POKEC+21,1:POKE54296,0
130 PRINTTAB(12)"[3CD]ANOTHER GO ? Y/N"
140 GETA$:IFA$=""THEN140
150 IFA$<>"Y"THENEND
160 POKE53249,0:POKEC+5,0:POKEC+27,1:RUN6
200 PRINTCHR$(14):PRINT"[CLS][REV][8SPC][G>M]OONBASE [G>C]ONTROL [G>C]ENTRE[9SPC
][OFF]"
210 PRINT" [G>Y]OU ARE IN CONTROL OF MOONBASE,A CENTREWHICH IS DEDICATED";
215 PRINT" TO THE TASK OF RETRIEVING PRECIOUS SATTELITES WHICH ORBIT THE";
220 PRINT"MOON'S[3SPC]SURFACE."
230 PRINT"[G>T]O[2SPC]LAND A SATTELITE[2SPC]SAFELY IT[2SPC]MUST BEIMMEDIATELY AB
OVE THE ";
235 PRINT"LANDING AREA,AND[2SPC]AT THE POINT OF IMPACT,MUST BE TRAVELINGLESS THA
N";
240 PRINT" 20MPH.":PRINT"[G>R]ADAR WILL FLASH GREEN WHEN A CRAFT IS[2SPC]OVERHEA
D."
245 PRINT"[G>P]RESS FIRE TO START THE LANDING PROCESS.";
250 PRINT"[G>T]O SLOW THE CRAFT DOWN,PUSH JOYSTICK[2SPC]UPFOR MORE THRUST."
255 PRINT"[G>T]OO MUCH THRUST WILL MAKE THE CRAFT GAINALTITUDE."
260 PRINT"[G>T]OO LITTLE WILL MAKE IT CRASH."
270 PRINT"[G>T]O RECTIFY'DRIFT',PUSH JOYSTICK LEFT OR RIGHT."
280 PRINT:PRINT"[G>B]E CAREFULL NOT TO RUN OUT OF FUEL."
290 PRINTTAB(9)"[CD][G>P]RESS [G>A]NY [G>K]EY [G>T]O [G>P]LAY"
300 GETA$:IFA$=""THEN300
310 PRINTCHR$(142):RETURN
500 IFSP<0THENSP=0
510 IFSP>200THENSP=200
520 POKEC+21,4:POKEC+4,SX:POKEC+5,SP
530 GOSUB700
540 POKE54273,7:POKE54272,7
550 FORA1=15TO0STEP-1:POKEC+41,A1
560 POKE54296,A1
570 FORQ=1TO30:NEXTQ
580 NEXTA1
590 POKE54278,0:POKE54277,0:POKE54276,0:POKEC+21,0:RETURN
600 GOSUB700
610 POKE54273,255-(H/20):POKE54272,(H/20):RETURN
700 POKE54277,1:POKE54278,255:POKE54276,129:RETURN
800 POKEC+27,0:FORA=1TO4000:NEXT
805 PRINT"[HOM][CD][WHT]..............STATUS REPORT.............";
810 FORA=1TO3:PRINT"........................................";:NEXT:PRINT
820 RETURN
830 PRINT"[HOM][3CD][2CR]SPACECRAFT DESTROYED IN CRASH LANDING"
840 RETURN
850 PRINT"[HOM][3CD][2CR]FUEL EXHAUSTED[CR]SPACECRAFT DESTROYED"
860 RETURN
870 PRINT"[HOM][3CD][2CR]SUCCEFULL LANDING[CR]SPACECRAFT RETREIVED"
880 RETURN
1000 POKEC+23,0:POKEC+29,0:POKEC+21,1:POKE2040,195:SP=215
1010 SX=INT(RND(1)*255)+1
1020 PRINT"[HOM][3CD][YEL][31SPC](.)"
1030 IFSX=160ANDSP<50THENPOKE1176,81:POKE55448,5
1040 POKEC,SX:IFSP=>0THENPOKEC+1,SP
1050 IFSX<160THENSX=SX+.5
1060 IFSX>160THENSX=SX-.5
1070 SP=SP-(215/SP):IFINT(SP)=120THENPOKEC+23,1:POKEC+29,1
1080 IF(PEEK(J)AND16)=0ANDSP<50ANDPEEK(1176)=81THEN1120
1090 IF(PEEK(J)AND16)=0ANDPEEK(1176)<>81THEN1200
1100 IFSP<0THEN1000
1110 GOTO1020
1120 POKEC+23,0:POKEC+29,0:RETURN
1200 POKEC+27,1:FORA=INT(SP)TO215
1210 POKEC+1,A:FORQ=1TO10:NEXT
1220 NEXTA
1230 GOSUB700:GOSUB540:FORQ=1TO1000:NEXT:GOTO1000
2000 X=12288:CH=0
2005 FORA=0TO191:READ D:POKEX,D:X=X+1:CH=CH+D:NEXTA
2010 DATA 0,124,8,49,171,16,115,109
2020 DATA 160,54,238,192,27,239,128,6
2030 DATA 254,192,3,187,128,1,255,0
```

FOR THE COMMODORE 64

BY FRANK BINGLEY

MOONBASE

```
2040 DATA 0,254,0,15,255,224,15,255
2050 DATA 224,1,17,0,2,16,128,4
2060 DATA 16,64,8,16,32,16,56,16
2070 DATA 56,124,28,124,0,62,0,0
2080 DATA 0,0,0,0,0,0,0,67
2090 DATA 0,0,0,32,0,2,0,0
2100 DATA 0,0,0,0,0,32,96,0
2110 DATA 0,0,2,2,4,0,192,0
2120 DATA 100,108,64,19,71,176,3,123
2130 DATA 136,7,125,192,4,62,64,7
2140 DATA 255,230,7,199,135,131,255,132
2150 DATA 97,249,2,56,252,8,75,127
2160 DATA 224,11,127,0,248,103,243,64
2170 DATA 0,0,0,0,198,0,0,198
2180 DATA 0,0,198,0,1,199,0,1
2190 DATA 175,0,1,237,0,3,237,0
2200 DATA 1,239,0,1,47,128,4,237
2210 DATA 0,2,9,0,0,130,128,0
2220 DATA 0,128,2,2,0,0,0,0
2230 DATA 0,0,0,0,0,0,0,0
2240 DATA 0,0,0,0,0,0,0,0
2250 IFCH<>12110THENPOKE12289,0:PRINT"[CLS]DATA ERROR,CHECK DATA STATEMENTS":END
2260 FORA=12480TO12543:POKEA,0:NEXT
2270 POKE12480,192:POKE12483,192:RETURN
```



HOW TO USE EASY ENTER

EASY ENTER

COLOUR CODES

[BLK] — press CTRL and 1
[WHT] — press CTRL and 2
[RED] — press CTRL and 3
[CYN] — press CTRL and 4
[PUR] — press CTRL and 5
[GRN] — press CTRL and 6
[BLU] — press CTRL and 7
[YEL] — press CTRL and 8

[ORG] — press CBM key and 1
[BRN] — press CBM key and 2
[L RED] — press CBM key and 3
[GR1] — press CBM key and 4
[GR2] — press CBM key and 5
[L GRN] — press CBM key and 6
[L BLU] — press CBM key and 7
[GR3] — press CBM key and 8

COMMODORE GRAPHIC CHARACTERS

PRINT WHITE
CURSOR DOWN
REVERSE FIELD ON
HOME
PRINT RED
CURSOR RIGHT
PRINT GREEN
PRINT BLUE
FUNCTION KEY F1
FUNCTION KEY F3
FUNCTION KEY F5
FUNCTION KEY F7

FUNCTION KEY F2
FUNCTION KEY F4
FUNCTION KEY F6
FUNCTION KEY F8
PRINT BLACK
CURSOR UP
REVERSE FIELD OFF
CLEAR
INSERT
PRINT PURPLE
CURSOR LEFT
PRINT YELLOW
PRINT CYAN

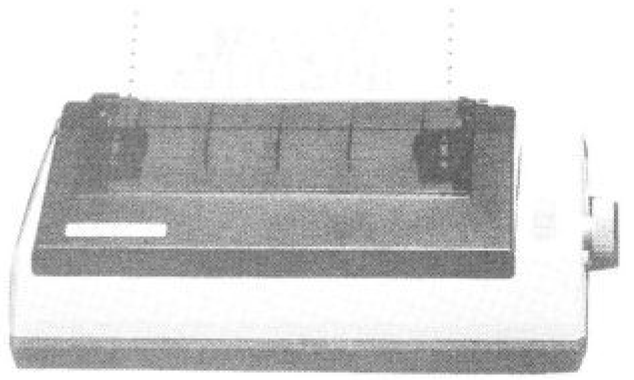
OTHER CODES

[CU] — press 'cursor up' key
[CD] — press 'cursor down' key
[CL] — press 'cursor left' key
[CR] — press 'cursor right' key
[HOM] — press HOME key
[CLS] — press CLEAR key
[DEF] — press INST key (insert)
[REV] — press RVS ON key (CTRL and 9)
[OFF] — press RVS OFF key (CTRL and 0)
[SPC] — press spacebar
[G<key] — press CBM key with specified key
[G>key] — press SHIFT key with specified key

EXAMPLES:

[3SPC] — press spacebar three times
[5CD] — press 'cursor down' key five times
[G>F] — press SHIFT key with 'F'

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STAR SG10

Character Sets

96 Standard ASCII Characters
88 Standard International Characters
96 Italic Characters
88 Italic International Characters
96 NLQ Characters
88 NLQ International Characters

Character Matrix

Standard Characters: 9 dot × 11 dot
STAR Block Graphics: 6 dot × 6 dot
IBM Block Graphics: 12 dot × 11 dot
User Defined: 8 dot × 4 to 11 dot
Near Letter Quality: 17 dot × 11 dot

Character Fonts

Normal (10 CPI)
Elite (12 CPI)
Condensed (17 CPI)
NLQ (10 CPI)

Line Spacing $\frac{1}{6}$, $\frac{1}{8}$ in. or $\frac{7}{72}$ in. Standard
Dimensions (W × D × H) 392 × 315 × 145mm (15.4 × 12.4 × 5.7 in.)
Number of Columns 80, 96, 136, (40, 48, 68 Double Width)
Print Head 9 Wires (User Replaceable)

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HISSING

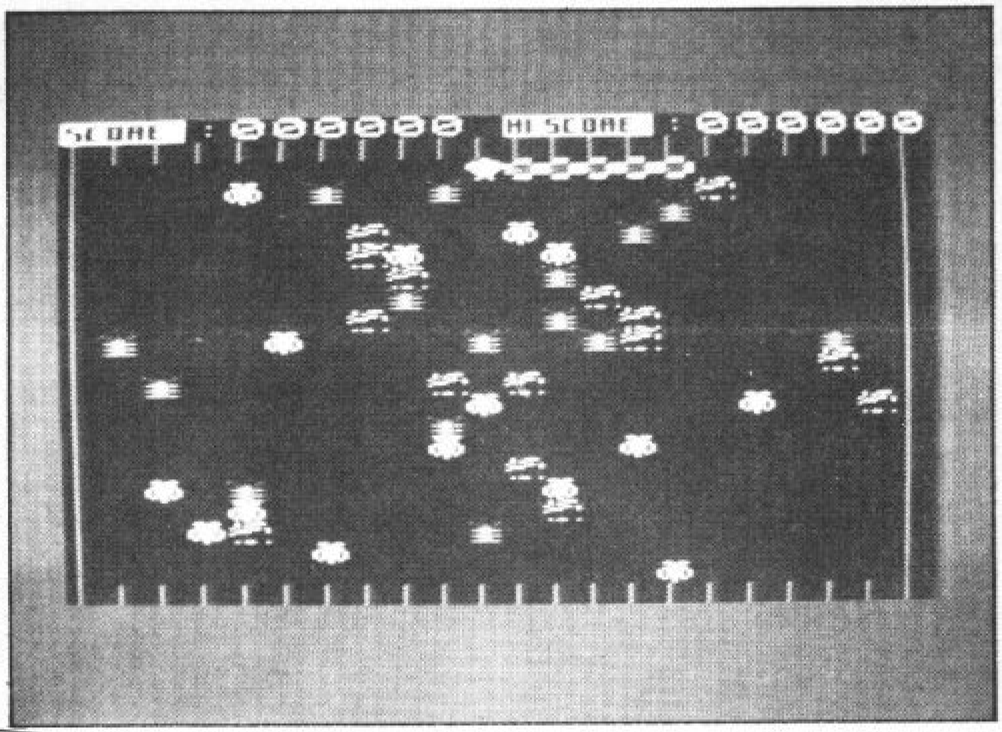
Rupert Willard uses a combination of Basic and machine-code to create slick arcade style graphics in this game for the Vic. Steer Sid Snake towards the grubs, which he munches to keep up his stamina and, of course, increase your score. Beware the bees, which will sting him to death on contact.

```
10 DIMB$(5):FORI=1TO5:B$(I)="000000 ???":NEXT
20 DEFFNR(X)=INT(RND(1)*X)
30 POKE56,29:POKE52,29
40 TC=7680:CO=30720:S1=36874:S2=S1+2:S3=S2+1:V=S2+2:G=V+1:S=42:M=9:B=40:F=41:W=1
22
50 GOSUB840
60 NM=20:GOSUB510:POKEV,47
70 HP=TC+10+22*2:L=5:TP=HP+L:D=22:H=46
80 POKEHP,H:POKEHP+CO,1:FORI=HP+1TOTP:POKEI,S:POKEI+CO,13:NEXT
90 SC=0:GOSUB410
100 PRINT"[HOM][REV][WHT]"TAB(16)LEFT$(B$(1),6);:T=TI
110 GETA$:IFA$=""ANDTI-T<300THEN110
120 GOTO150
130 IFSC<0THEN640
140 GETA$
150 Z=22*(A$=Q$)-22*(A$=U$)+(A$=V$)-(A$=K$):D=-D*(Z=0)+Z
160 H=-43*(D=1)-44*(D=-1)-45*(D=-22)-46*(D=22)
170 POKEHP,H:NP=HP+D:P=PEEK(NP)
180 IFP=MORP=STHEN640
190 IFP=WORPEEK(NP+1)=SORPEEK(NP-1)=SORPEEK(NP+22)=SORPEEK(NP-22)=STHENGOSUB390:
GOTO130
200 IFP=BTHENGOSUB300
210 IFP=FTHENGOSUB340
220 IFNB=0ANDNF=0THENNM=10:GOSUB560:GOTO100
230 GOSUB240:GOTO140
240 POKES3,254
250 POKEHP+CO,13:POKEHP,S:HP=NP:POKEHP+CO,1:POKEHP,H
260 IFE>0THENE=E-1:GOTO290
270 POKETP,32
280 TP=TP-(PEEK(TP+1)=S)+(PEEK(TP-1)=S)+22*(PEEK(TP-22)=S)-22*(PEEK(TP+22)=S)
290 POKES3,0:FORT=1TO150-4*L:NEXT:RETURN
300 POKEG,8:L=L+1:E=E+1
310 X=INT((100+5*L)/10)
320 FORI=1TO10:POKES3,220:POKENP,I+93
330 SC=SC+X:GOSUB410:POKES3,0:NEXT:POKEG,10:NB=NB-1:POKENP,32:RETURN
340 POKEG,13:L=L+2:L=L+2
350 X=INT((150+6*L)/10)
360 FORI=1TO10:POKES3,240:POKENP,I+93
370 SC=SC+X:GOSUB410:POKES3,0:NEXT:POKEG,10:NF=NF-1:POKENP,32
380 RETURN
390 POKES3,250
400 SC=SC-10:GOSUB410:POKES3,0:RETURN
410 S$=STR$(SC):Q=LEN(S$):S$=LEFT$("00000",7-Q)+RIGHT$(S$,Q-1)
420 PRINT"[HOM][WHT][4CR][REV]"S$:RETURN
430 FORC=35TO46:FORZ=0TO7:READN:POKE7168+8*C+Z,N:NEXT:NEXT
440 FORZ=8*32TO8*32+7:POKE7168+Z,0:NEXT:RETURN
450 DATA255,171,171,139,171,171,171,255,255,136,187,139,235,235,136,255
460 DATA255,136,170,168,170,170,138,255,255,143,191,159,191,191,143,255
```

SID

FOR THE UNEXPANDED VIC 20

BY RUPERT WILLARD



```
470 DATA56,124,124,254,186,56,56,124,130,84,56,254,56,254,56,254
480 DATA108,16,124,186,186,186,84,16,40,40,190,190,190,190,40,40
490 DATA48,104,109,254,254,109,104,48,12,22,182,127,127,182,22,12
500 DATA36,24,60,126,153,255,126,24,24,126,255,153,126,60,24,36
510 POKE36869,255
520 POKEG,10:PRINT"[CLS][YEL][OFF]$%&[REV]:"TAB(11)"[OFF]£$%&[REV]:"
530 FORI=0TO21:P1=TC+22+I:P2=TC+22*22+I:P3=TC+22*(1+I):P4=TC+21+22*(1+I)
540 POKEP1,W:POKEP2,W:POKEP3,W:POKEP4,W:POKEP1+CO,5:POKEP2+CO,5:POKEP3+CO,
5:POKE P4+CO,5
550 NEXT
560 CH=M:C=7:GOSUB590
570 CH=B:C=4:NB=15:N=NB:GOSUB590
580 CH=F:C=1:NF=5:GOSUB590:RETURN
590 FORI=1TON
600 P=TC+FNR(20)+1+22*(FNR(19)+3)
610 IFPEEK(P)<>32THEN600
620 POKEP+CO,C:POKEP,CH
630 NEXT:RETURN
640 FORY=1TO15:POKE36878,15-Y:FORX=239-YTO254STEP3:POKEG,25
650 POKES2,X-Y:NEXT:NEXT:POKES2,0
660 POKEG,12:POKE36869,240:POKE198,0
670 PRINT"[CLS][REV][WHT][5SPC]YOU'RE DEAD[6SPC]"
680 PRINT"[5CD]YOUR SCORE WAS:"SC
690 K=0:FORI=1TO5:IFSC>VAL(LEFT$(B$(I),6))THENK=I:I=5
700 NEXT:IFK=0THENFORT=1TO1000:NEXT:GOTO770
710 PRINT"[CD][CYN]YOU'RE SCORE IS IN[5SPC]THE TOP FIVE"
720 PRINT"[CD]ENTER YOUR INITIALS[CD]":INPUTI$:IFLEN(I$)>3THEN720
730 POKEV,15
740 FORX=219TO239:FORY=1TO5:POKES2,16+X-Y:NEXT:NEXT:POKES2,0
750 FORI=4TOKSTEP-1:B$(I+1)=B$(I):NEXT
760 B$(K)=S$+" "+I$
770 POKEG,222:PRINT"[CLS]"TAB(5)"[BLK]SCORE GALLERY"
780 FORI=1TO5:PRINT"[CD][RED]"I"[BLU]"B$(I):NEXT
790 PRINT"[2CD][BLK]ANOTHER GO(Y/N)?"
800 GETY$:IFY$=""THEN800
810 IFY$="Y"THEN60
820 IFY$="N"THEN920
830 GOTO790
840 POKEG,254:PRINT"[CLS][BLU][REV] H I S S I N G[2SPC]S I D "
850 PRINT"[CD][PUR]ENTER KEY FOR...":INPUT"UP[3SPC]>";Q$:INPUT"DOWN >";U$
860 INPUT"LEFT >";V$:INPUT"RIGHT>";K$
870 PRINT"[2CD][BLK]EAT THE CENTIPEDES &":PRINT"[CD]BEETLES BUT BEWARE OF"
880 PRINT"[CD][RED]THE KILLER BEE SWARMS":GOSUB430
890 PRINT"[2CD][REV][BLU][6SPC]HIT ANY KEY[4SPC]"
900 GETA$:IFA$=""THEN900
910 RETURN
920 SYS64802
```

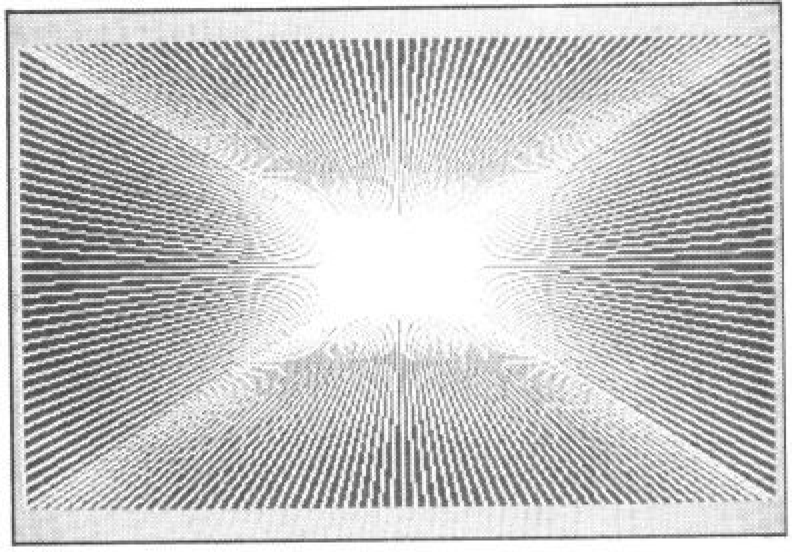
Graphic effects for the Commodore 16

Here's a set of four short programs that use the C-16's unique Basic commands to produce spectacular graphic displays.

They're all taken from a new book published by Prentice-Hall, called *100 Programs for the Commodore 16* — by Ian McLean and John Gordon.

We've managed to get fifteen pristine copies to offer as prizes. How can you win a copy for yourself? Simply write a similar short program that produces a graphic display of some kind. The program give here should give you some pretty good ideas — so get cracking.

Send your entry, on a tape please, to: Graphic Competition, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.



INTERFERENCE

INTERFERENCE

This short program produces a spectacular and colourful display. When you've run it, press any key to change colour or 'Q' to quit.

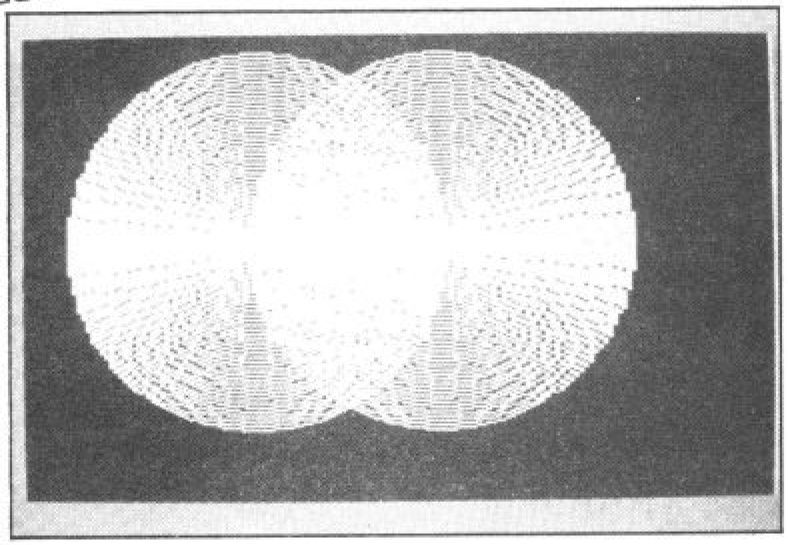
```
10 REM "INTERFERENCE"
30 A$="C"
40 DO WHILE A$<>"Q"
50 GRAPHIC1,1
60 BG=INT(RND(1)*16+1)
70 FG=INT(RND(1)*16+1):IF BG=FG THEN 60
80 S=INT(RND(1)*4+3)
90 COLOR0,BG:COLOR1,FG
100 FOR I=0 TO 199 STEP S
110 Y=199-I
120 DRAW 1,0,I TO 319,Y
130 NEXT I
140 FOR I =319 TO 0 STEP -S
150 DRAW1,I,0 TO 319-I,199
160 NEXT I
170 GET A$:IF A$="" THEN 170
180 LOOP
190 GRAPHIC 0
200 COLOR0,7:COLOR1,1
210 END
```

CIRCLES

Be patient, this program takes a little time to finish when you've run it. But the effect is quite pretty — two circles build up and run into each other.

```
20 REM "CIRCLES"
25 A$="C"
30 DO WHILE A$<>"Q"
40 GRAPHIC 3,1
41 BG=INT(RND(1)*16+1)
42 FG=INT(RND(1)*16+1):IF BG=FG THEN41
43 M1=INT(RND(1)*16+1):IF M1=FG OR M1=BG THEN43
44 M2 =INT(RND(1)*16+1):IF M2=FG OR M2=BG OR M2=M1 THEN44
45 COLOR0,BG:COLOR1,FG:COLOR2,M1:COLOR3,M2
50 FOR N=1TO40
60 FOR C=1TO 3
70 CIRCLEC,50,87,N
80 CIRCLEC,89,87,N
90 NEXTC
100 NEXTN
110 GET A$:IF A$="" THEN 110
120 LOOP
130 GRAPHIC 0
140 END
```

CIRCLES



WORM

This little offering uses multicolour high-resolution mode to make a "worm" slither across the screen — now don't be squeamish. A simple but effective technique is used to give you the illusion of movement.

As the multicoloured pixels that make up the worm are inked in at the front, they delete themselves at the back. You can stop the program by pressing any key; that puts you back into the text mode.

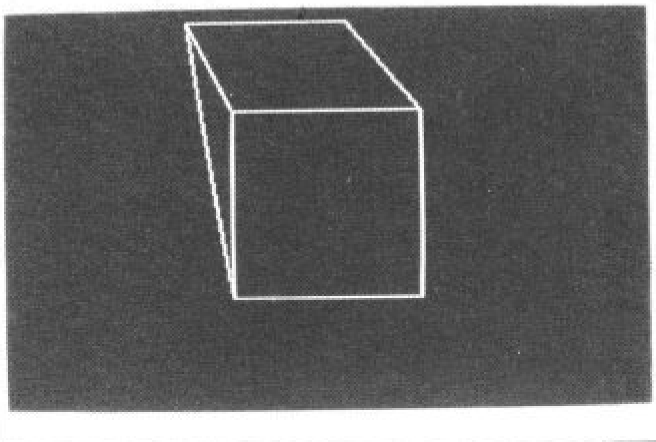
```
30 REM "WORM"
40 COLOR0,1:REM BLACK SCREEN
50 COLOR1,2:REM COLOR 1 WHITE
60 COLOR2,16,2:REM COLOR 2 GREEN
70 COLOR4,7:REM BLUE BORDER
80 GRAPHIC 3,1:REM MULTICOLOR HI-RES MODE
90 DO
100 :    FOR N=0 TO 199
110 :        X=N:IF X>159 THEN X=159
120 :        R=N-40:IF R<0 THEN R=0
130 :        Y=INT(90+10*SIN(X/4))
140 :        W=INT(90+10*SIN(R/4))
150 :        C=2+(N/2=INT(N/2))
160 :        DRAW C,X,Y
170 :        DRAW O,R,W
180 :        GET A$
190 :        IF LEN(A$)>0 THEN N=199:F=1:ELSE F=0
200 :    NEXT
210 LOOP UNTIL F=1
220 GRAPHIC 0,1
230 REM PRESS ANY KEY TO RETURN TO TEXT MODE
240 END
```

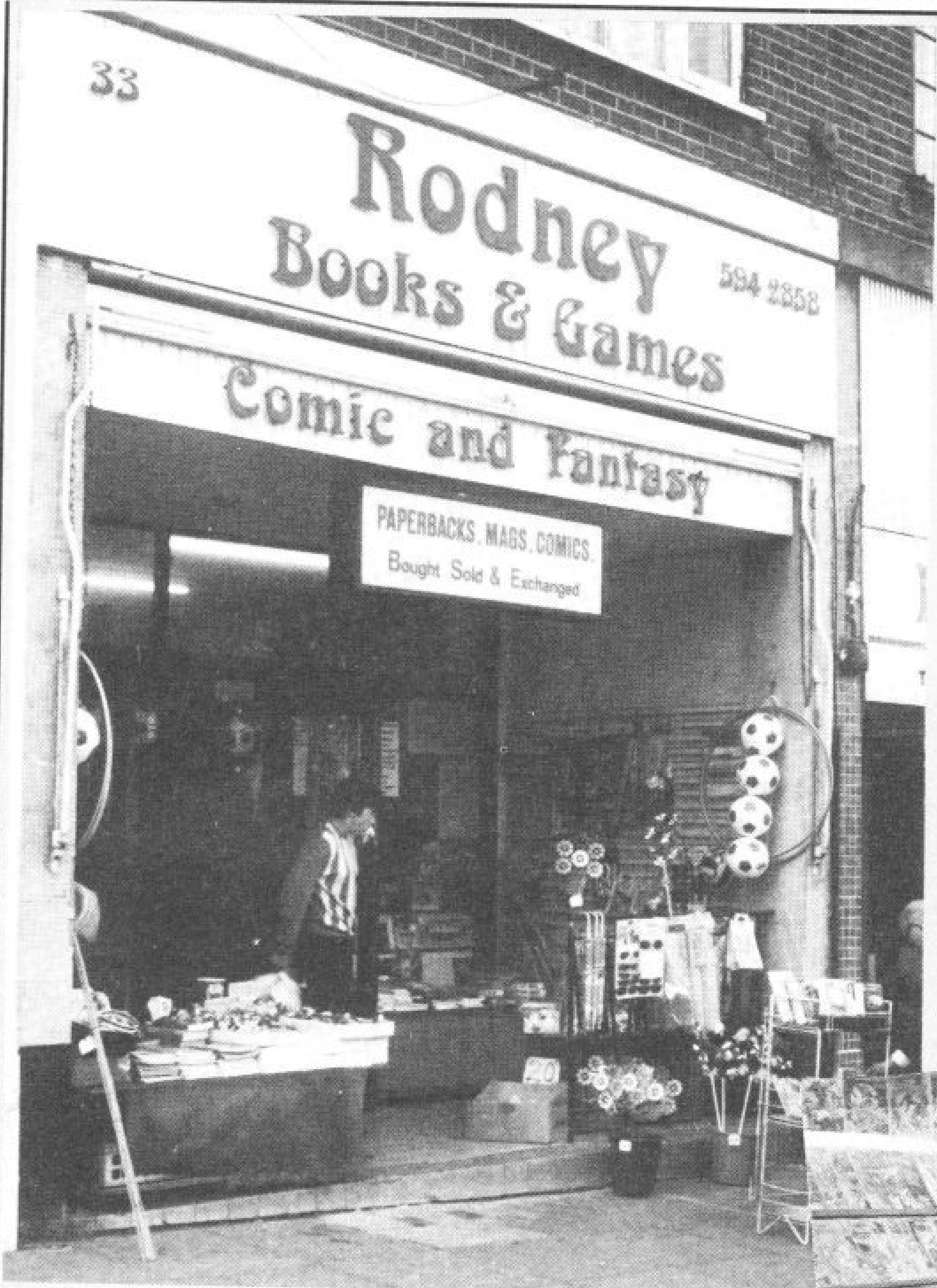
ZOOM

```
10 REM "ZOOM"
20 SCNCLR
30 CHAR,17,13,"ZOOM"
40 A=TI
50 DO:LOOP UNTIL TI>A+150
60 GRAPHIC 1,1
70 S=10:GOSUB 170
80 GETKEY A$
90 IF A$="Q" THEN GRAPHIC 0,0:END
100 D=-(A$="I")+(A$="O")
110 SCNCLR
120 S=S+D:GOSUB 170
130 GOTO 80
140 END
150 REM SUBROUTINE TO DRAW CUBE
160 REM OF SIDE LENGTH S
170 IF S<0 THEN RETURN
180 DRAW1,(-S+160),(S+100)
190 DRAW TO (S+160),(S+100)
200 DRAW TO (S+160),(-S+100)
210 DRAW TO (1.5*S+160),(2*S+100)
220 DRAW TO (1.5*S+160),(2*S+100)
230 DRAW TO (S/1.25-S+160),(2*S+100)
240 DRAW TO (-S+160),(S+100)
250 DRAW TO (-S+160),(-S+100)
260 DRAW TO (S+160),(-S+100)
270 DRAW 1,(S+160),(S+100)
280 DRAW TO(1.5*S+160),(2*S+100)
290 RETURN
```

This final little program is rather more complex than the rest. It produces a cube shape in the centre of the screen which can be "zoomed" both larger and smaller.

To control the effect you press the 'I' key to zoom in and shrink the cube, and the 'O' key to zoom out and enlarge it. Try playing around with lines 180 to 280 to produce a different shape. Remember that you'll need to work out lengths for all the sides to keep the shape in proportion.







Top: The shopfront of Rodney's in Barking, Essex.
Bottom: Rows of comics wait for thrill hungry punters.

Rodney's ZarJaz 64

Continuing our insatiable quest to find unusual professional uses for the Commodore 64, we visit Rodney's, a specialist shop crammed with comics, science fiction paraphenalia and a sprinkling of computer games. Somewhere amongst that lot, there's a Commodore 64 helping to keep things running smoothly.

by Valerie Buckle

Rodney's Books and Games first came to my notice five years ago as one of the more interesting shops to browse around in the hope of finding that elusive science-fiction book you've always wanted to read but were never able to find. I spent many a happy hour rooting through the shelves and occasionally found a specimen of that most rare species; a first edition from an author with "underground" appeal.

Rodney's entered a new dimension in the space-time continuum with the arrival in 1982 of one Ian Broom, comic enthusiast turned entrepreneur. Ian emerged, like one of the characters in his own comics, to turn the cellar of the shop into a paradise for Scifi and comics fans. Three years on, Ian runs one of the specialist shops in the UK for American import comics and does a healthy sideline in related software. It comes as no surprise to learn that Ian relies heavily on his Commodore 64 to help with the management side of the business.

Comic cuts

Ian's love of comics turned into a business propostion when, in his own words, he "found himself in a conveyor-belt job which held no lasting interest". He admits that it was difficult at first: "I had to sink a great deal of capital into the venture, but now the time and effort are paying off. We have become well-known in the trade and have customers coming from all over to buy our comics."

I asked Ian about his decision to introduce a computer to help with the management of the shop. "It was really when we started to stock the software that we actually decided to use one of the machines ourselves". When the first cheap micros appeared on the scene there was a ready-made audience for fantasy-related software and games from the hard-core Scifi and comic fans. "It was a natural progression. We've always prided ourselves on knowing about what we sell so it made sense for us to use a computer in the shop".

Small is beautiful

The shop is now equipped with a Commodore 64, 1702 monitor and cassette unit, and Ian is quick to stress the uses of his small system. "It really has made a difference to the efficiency of the shop. We use the machine for stock control of the comics, invoice control and data storage". With more than 100,000 comics in stock at any one time, it is of paramount importance to know which titles have been sold out, how many of a particular title are left and so fill any gaps in the shelves.

I wanted to know why Ian chose a Commodore 64. "It's really the micro of the future. When we first started out, the Spectrum was all the rage. But I could see that we needed the larger memory of the 64, plus there was a lot of useful software available. The other advantage it had over the competition was its superb keyboard".

Funnily enough, the shop makes do with a plodding cassette unit rather than the speedier and definitely more hi-tech 1541 disk drive. But Ian was eager to insist that

they do not need a drive for use in the shop. "The 1541 is an expensive outlay for businesses such as ours and it's so slow. The software I use here comes on cassette so I'm happy for the moment to stick with the cassette".

Getting software taped

Ian uses the bare minimum in the shop when it comes to software. No mean programmer himself, he has designed a small program to record stock levels. Current stock is listed by title and updated as and when necessary. Ian reckons that about 90-95 per cent of all stock is listed in this way and the rest taken into account at the end of the trading year.

He admits that keeping the stock control up to date is a mammoth task and is not always done immediately. Still, a few hours spent entering the information is preferable to keeping stacks of paperwork around the office and his data is almost instantly accessible.

He's now using the much-accliamed *MicroSwift* spreadsheet from Audiogenic to control the financial side of the business. As a delivery of comics comes in, Ian writes all the details of price, order number, name etc on a separate sheet for each company. Each sheet is then saved onto a separate tape so that it can be altered as the stock from a particular company changes throughout the week.

Ian is thus able to save all the data relevant to a particular order in a coherent manner so that he has important details of the current state of trade at his fingertips.

In this way, if a distributor phones up with an enquiry about, for example, an unsettled payment, Ian can load the relevant sheet and assure the company within a couple of minutes that the payment has, in fact, been made.

Ian doesn't use any of the complete Business packages written for the Commodore 64 as he reckons that his system is satisfactory at the moment. The computer calculates profits for VAT returns but then all the details are turned over to his accountant. As the business expands, which Ian hopes it will continue to do, he acknowledges that he'll have to invest in more advanced software.



Ian Broom and staff discuss the metaphysical implications of the latest issue of The Swamp Thing.

He plans to buy a disk drive for his 64 when a faster machine comes on the market and will then investigate the many suitable packages available on disk. Like other shop owners, Ian is keen on investigating the possibilities of linking up his machine to the till so that the stock records will automatically be altered as each sale is made.

Back for more

"A satisfied customer comes back for more", says Ian and using a computer in the shop undoubtedly enhances the service they are able to give. A quick look at his home-made database and Ian is able to advise whether or not a comic is in stock.

The key to their successful customer relations lies in their enthusiasm for and understanding of all that they sell. Ian's knowledge of the C2N cassette unit has led him to provide a repairs service for his clients. He recently discovered that a modification to the unit by Commodore prevented any turbo cassette from loading, and since Christmas he has repaired over 200 of these faults.

In the computer games department, Ian admits that piracy can be a problem but once again their computer often comes to the rescue. "We get a lot of people bringing a game back and saying that it won't work when it's obvious that they've copied it. We just load it up into our system and if it does work they have to admit defeat and take it away.

"We're all games enthusiasts ourselves and know a lot about all the games we sell so we can explain what each one is about before a customer buys it. This cuts down on the numbers of people who bring tapes back that they've copied saying they didn't like it and then asking to swap."

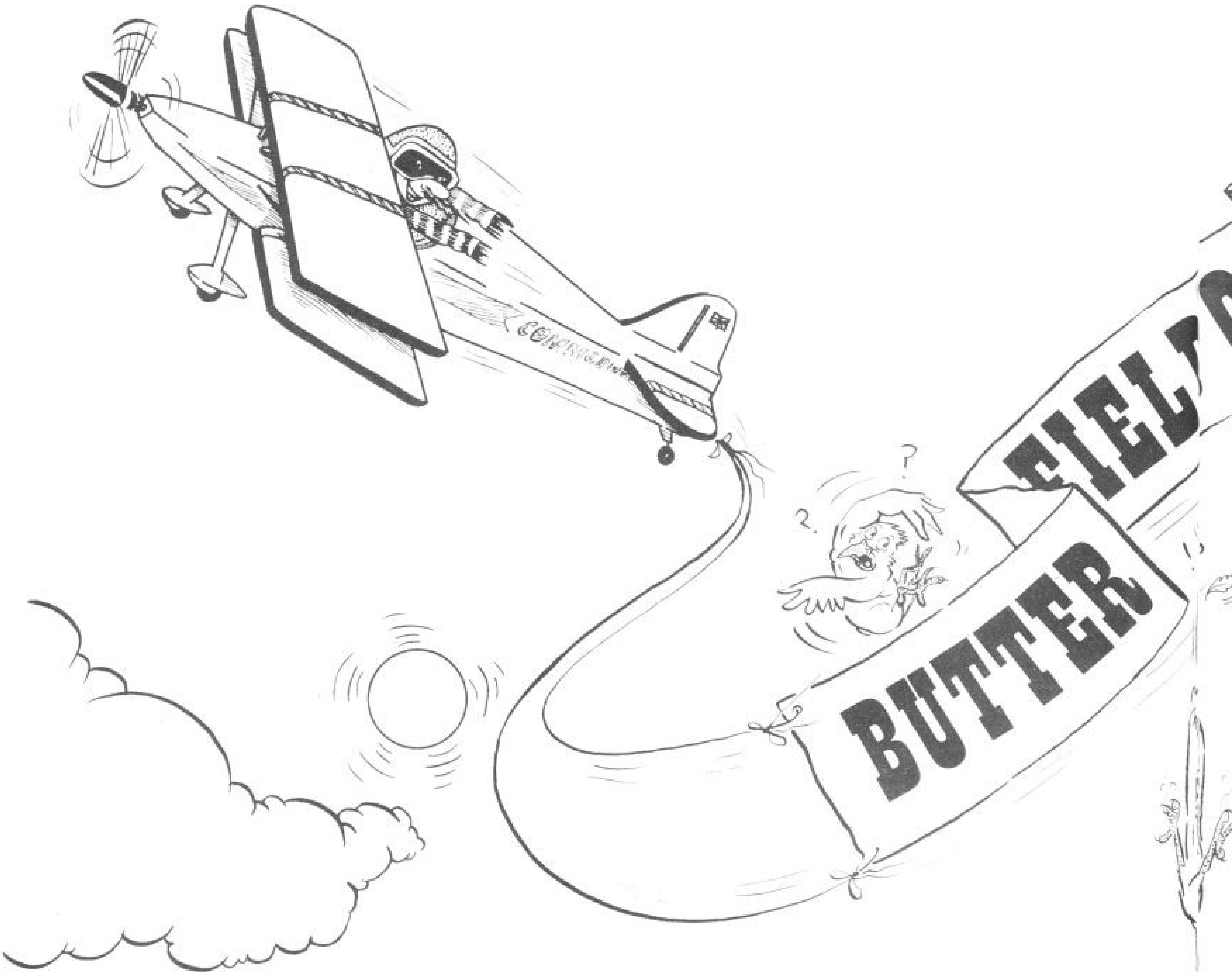
A self-confessed adventure games addict, Ian even offers a free helpline service to anyone who gets stuck with an adventure. "This started when Anirog challenged me to finish a game within two weeks. I did it and they then asked me if they could give out the number of the shop as a helpline for people who needed hints on their games. The first morning I got about twenty phone calls!"

He tries to restrict this service to a set number of hours a week but inevitably gets inundated with calls for help at the most inopportune moments. One chap from Glasgow regularly phones up for about twenty minutes at a time. "I'd love to know what his phone bill is", quipped Ian.

Finally, I asked Ian in which area of his business his Commodore system has contributed the most. "The computer is used for so many applications that it's difficult to say. I think that it has enabled us to give a more complete service to our customers and without satisfied customers we wouldn't be here."

There's no doubt that business is good at Rodney's Books and Games and Ian's success goes a long way to show that a small shop does not have to spend large amounts of money on installing a useful system. Knowledge of what a computer can do plus a little imagination seem to be of greater benefit than state-of-the-art equipment that nobody knows how to use.





After a long absence, Commodore-guru Jim Butterfield is back. And he's dealing with graphics, his favourite subject. This month he's looking at an unusual video feature called Extended Colour.

by Jim Butterfield

EXTENDED COLOUR ON YOUR 64, 16 OR PLUS/4

There's a feature on the Commodore 64 that's not very well known. It can give you attractive displays very easily, especially for "poster" type announcements. It's called *Extended Colour* — and it gives you a choice of background colours. The same feature may be used on the Commodore 16 and Plus/4: we'll mention how to implement it on those machines, too.

Normally, you may choose a range of colours for everything you print on the screen of your Commodore 64. But each colour — each letter — is set against a single background colour. You know the background colour: that's the one you set with POKE 53281 . . . on the 64. Let's categorize the choices:

- Each character may be a choice of colours
- There are up to 128 possible characters, plus reverse characters
- The screen has only one background colour.

Let's make a trade. If you cut down your character set to 64 characters, with no reverse characters allowed, you may now select any of four background colours independently for each character. You will still have a full choice of character colours.

How do we make such a trade? We select extended colour mode, giving away our extra characters in favour of a choice of backgrounds. On the Commodore 64, we do this with POKE 53265,91; on the Commodore 16 or Plus/4 we do it with POKE 65286,91 . . . but wait! Don't do it yet; this POKE should be used within a program.

If you couldn't wait and typed in the POKE shown above, you'll have some





trouble seeing the cursor. As soon as you switched to extended colour mode, you "give away" the reverse characters, and the cursor flash effect is achieved by means of these characters. So you're typing semi-blind; put everything back with a POKE to the same address using a value of 27 rather than 91. You'll be happy to see the cursor again.

The Tradeoff

When you go to extended colour, you get extra background colours; in a moment, I'll show you how to select them. But you lose characters; you get only 64 of them, and there are no reverse characters. The 64 characters you get are generally the "unshifted" character set.

You'll use these "missing" characters to signal which background colour you want printed. When we get down to programming, we'll seem to be trying to print reversed characters, or shifted characters, or both together. When the program runs, we'll get only the standard unshifted characters every time, but they will appear on a variety of backgrounds. If this seems complex, wait until the example which will make everything clear.

So we are limited to the unshifted characters; depending on which mode we're in, that might be either upper case (graphics mode) or lower case (text mode). Fancy graphics characters are out — but the screen will gain extra richness from the variety of backgrounds.

Choosing the Background

First, you must pick the four background colours you want. The first one is the "standard" background colour; on the 64, you set it with POKE 53281 . . . as you have done many times. The other three are easy; on the 64, you set them with POKEs to 53282, 53283 and 53284. On the 16 and Plus/4 you may use the COLOUR command to set two of these colours (COLOUR 0.. and COLOUR 3.. will work) but you'll be better off to do a POKE to addresses 65301, 65302, 65303, and 65304. The addresses stack up as in Figure 1.

The table also hints at the way you choose the background colour. If you print an unshifted character, it will appear on the standard screen background. If you print a shifted character, it will appear as an unshifted character — but on a different background . . . and so on.

A Simple Banner Program

When you enter the program, you'll need to distinguish between shifted and unshifted characters. To make things easy, we'll force the computer into text mode. Enter the command: PRINT CHR$(14) and when you press RETURN, the screen will flip into lower case ("text mode"). This will make entry easier, since you won't have to spot graphics characters; but be careful you observe upper and lower case as you enter the program.

Figure 1

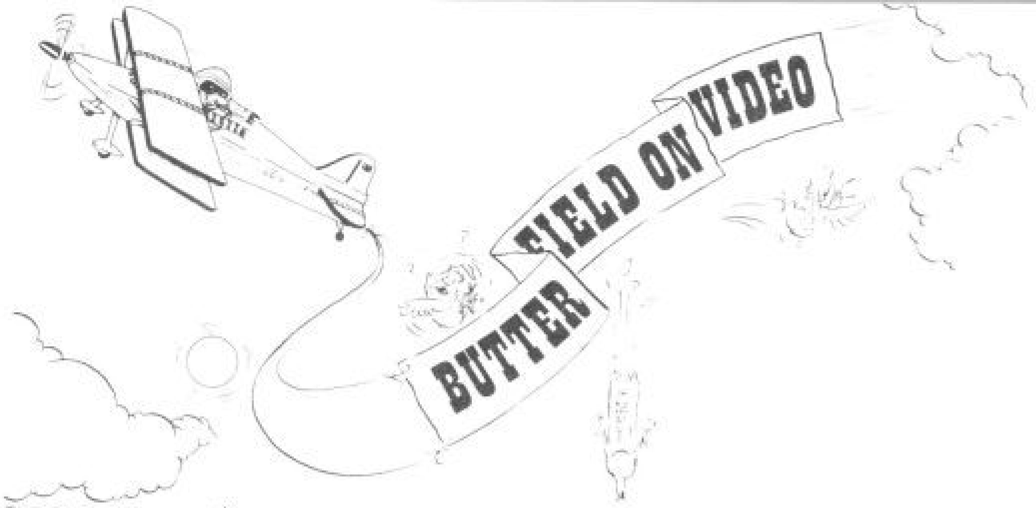
	16 and Plus/4	64
Normal background colour	65301	53281
"Shifted" character colour	65302	53282
"Reversed" character colour	65303	53283
"Shifted/Reversed" character colour	65304	53284

COMMODORE 64 PROGRAM:

```
100 data "hello",0
110 data "WELCOME TO
    THE",0
120 data "wonderful
    world of",1
130 data "COMMODORE
    EXTENDED COLOR",1
140 data "press any key
    to quit",0
150 data "x",0
200 print chr$(142);
    chr$(147); chr$(144)
210 poke 53281,1
220 poke 53282,2
230 poke 53283,3
240 poke 53284,4
250 poke 53265,91
300 print
310 read x$,x
320 if x$="x" goto 400
330 t=40-len(x$)
340 print tab(t/2);
350 if x=1 then print
    chr$(18);
360 print x$
370 goto 300
400 c=3
410 c=c+1: if c>15 then
    c=2
420 poke 53284,c
430 for p=1 to 1000:next
    p
440 get x$:if x$="" goto
    410
450 poke 53265,27
```

16 AND PLUS/4 PROGRAM:

```
100 data "hello",0
110 data "WELCOME TO
    THE",0
120 data "wonderful
    world of",1
130 data "COMMODORE
    EXTENDED COLOR",1
140 data "press any key
    to quit",0
150 data "x",0
200 print chr$(142);
    chr$(147); chr$(144)
210 poke 65301,113
220 poke 65302,82
230 poke 65303,83
240 poke 65304,84
250 poke 65286,91
300 print
310 read x$,x
320 if x$="x" goto 400
330 t=40-len(x$)
340 print tab(t/2);
350 if x=1 then print
    chr$(18);
```




```
360 print x$
370 goto 300
400 c=83
410 c=c+1: if c>95 then
    c=82
420 poke 65304,c
430 for p=1 to 1000:
    next p
440 get x$:if x$="" 
    goto 410
450 poke 65286,27
```

The program explained

Lines 100 to **150** contain the information to be printed, plus a "flag" to indicate if we are to print in "reverse" font. We could achieve the same thing within the string using clever cursor movements, but it would be a little harder to type. The last line **"x"**, is a signal for us to stop.

At **line 200**, we print three special characters: **142** moves us to graphics mode so that we'll print the message in capitals; **147** clears the screen; and **144** sets our printing colour to black. We could choose to print in any colour combinations, of course.

Lines 210 and **240** set our four background colours. We'll meddle with colour number 4 later, but this sets it initially. On the 16 and Plus/4, we may set both the colour and the *hue*; you may try experimenting with these values.

Line 250 puts us into multicolour mode. We're ready to print, and that's what we do in **lines 300** to **370**. Each line is centered on the screen: we calculate the number of empty spaces on the line (variable T) and then TAB half that amount to center the message. If **flag X** signals we desire "reverse" mode, we do so with **CHR$(18)** on **line 350**.

Lines 400 to the end take background 4 through a range of values so that we see the background behind 'COMMODORE EXTENDED COLOR' continually changing. And when we're finished, we kill extended colour mode and return to normal with the poke on **line 450**.

It's interesting to see the characters return to their "true" identities as the program terminates.

Problems and Challenges

In the above example, we've used only one printing colour — black. In fact, you can choose as many as you want in order to generate very effective "posters". We've all noticed that some colours work together better than others, so you may wish to try various combinations to get the best effect.

For alphabetic characters and spaces, it's easy to find the equivalent "shifted" characters . . . just hold down the shift key and you've got it. You'll have a challenge, however, to find some of the shifted equivalents of punctuation and numeric keys. I won't give the game away by telling you the special combinations, but here's a hint: go into extended colour mode and then try pressing keys with the Commodore key held down. Make a note of what you find so that you can generate the characters you need later.

Extended colour deserves more attention. With a little artistry you can divide the screen into differently coloured "windows" that will make your presentations more dynamic . . . and more colourful. □

Thanks for the melody

Music Maker Playalong Albums

Now that you have played *Ghostbusters* and *D T's Decathlon*, it's about time you used your 64 to play some music: Rod Stewart, Abba, The Beatles or even Mozart and Tchaikovsky. Commodore's new Music Maker Playalong Albums let you do just that. Or just sit back and listen . . .

Commodore has released three Playalong albums to kick-off what promises to be an expanding series: **Pop Hits**, **The Beatles** and **Popular Classics**. Although they're in the 'Music Maker' series, you need no extra software to use them. Music Maker's keyboard overlay would be a bonus, but you can get by without it. Each package costs £9.99, comes with appropriate sheet music and is available on tape and disk.

Spot the difference

All three albums work in the same way — they just play different tunes. So let's look at the facilities offered. There's two ways to use these programs: you play along with them in a variety of ways by pressing the 64's keys, or you just sit back and let the tunes play themselves.

Each program is menu driven and uses the function keys to select options. It couldn't be simpler. The main menu lists twelve tunes. When you've chosen one, the secondary menu lists three playing options: Single Key play, Rehearsal mode and Performance mode.

Whichever you choose, a musical keyboard is depicted on the screen, with a 'hand' pointing to the notes you must play. The accompaniment takes care of itself — you just play the melody line.
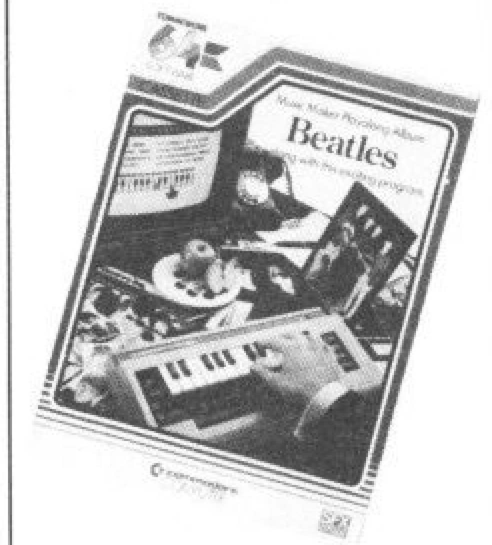
In Single Key play, you control the timing and rhythm. Pressing any key plays a note, together with its backing. So you can plod along, getting the feel of the music.
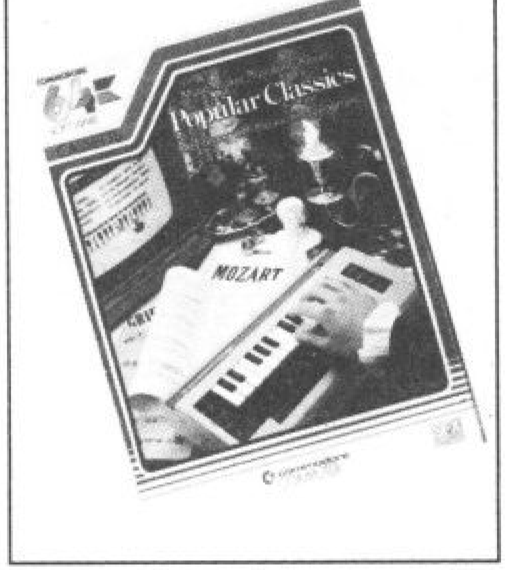
In Rehearsal mode, you must press the correct keys. Again the accompaniment waits for you. But you must get the timing right this time; press a key too quickly and the program ignores it.

Now you've learnt the melody, you move up to Performance mode. Here, the accompaniment plays itself and you provide the complete melody line. A metronome counts you in; from there it's up to you to keep time and play the right notes.

A few more points: each program lets you increase and decrease tempo, and change the pitch so you can tune the computer to other musical instruments. If you haven't got a Music Maker keyboard, the manual tells you which of the top two rows of keys on the 64 produce notes. It takes a little getting used to, though. For true professionals, the Midi interface lets you connect a standard Midi keyboard.







A music score book accompanies each package, containing the melody lines for the tunes. Notes are large and bold, each one identified with its letter. Above the staff, you get chord boxes for the accompaniment — all nicely laid out for the beginner.

If playing along is too much like hard work, the tunes will play themselves, using the Autoplay facility. LP mode plays all twelve tunes consecutively, whilst Concert or Jukebox mode plays them in any order you select.

To brighten up the screen while they're playing, you get a choice of two graphic displays: a moving bar chart showing the three voices, and a set of dancing notes. You can also connect the 64 to your hi-fi amplifier using the audio/video socket and a 5-pin DIN lead — there's a remarkable improvement in sound. So let's look at each package individually.

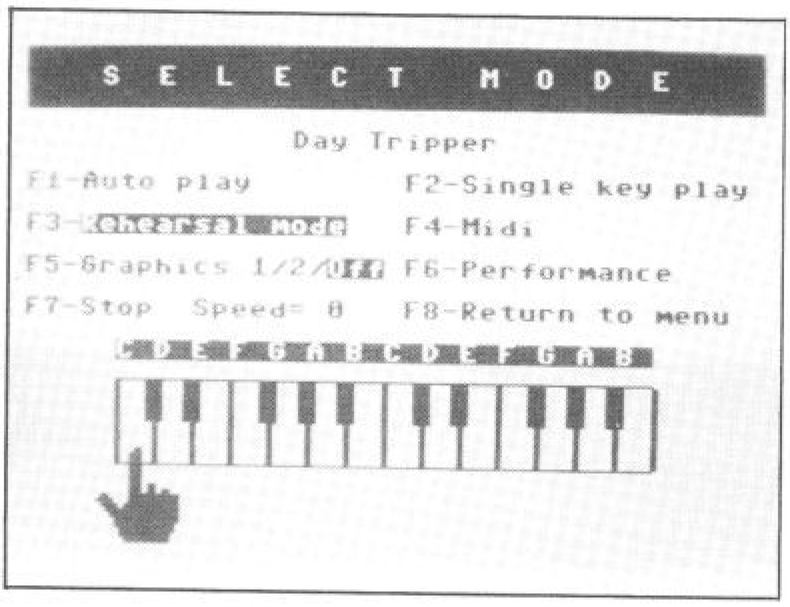
Pop Hits

You'll be disappointed if you're expecting to hear all your recent Chart favourites in this lot. The choice is strictly middle of the road and pretty unadventurous — a bit like those beginners music books you bought when you started playing your Woolworth's organ.

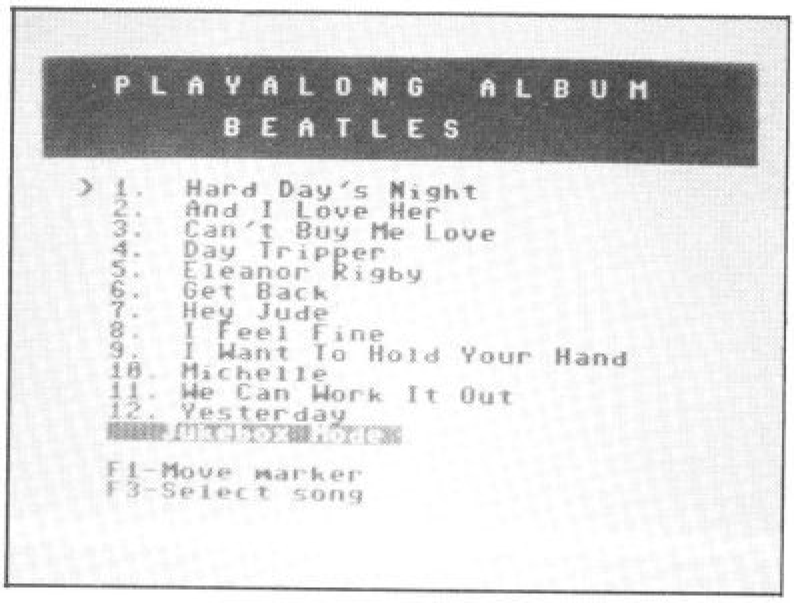
Sixties and Seventies fans get a frenetic version of *Telstar*, Free's *All Right Now* (nice drum beat and bass line) and, the hardy perennial, *House of The Rising Sun*. Apparently folk fans never tire of hearing *Streets of London*, so there's a tired helping of that, and a tastefully done *Morning Has Broken*.

More up to date, you get Rod Stewart's *Sailing* (good to singalong with), and two Abba numbers: *Thank Your For the Music* (no thanks) and *The Winner Takes It All*. ▷

Thanks for the melody



Rehearsal mode shows you which notes to play.



Main Menu lists all twelve tunes — for nostalgia buffs only.

Although the latter was impressive, the real hit on this album is *The Entertainer* (theme from The Sting) — great tune, brilliant arrangement. Worst offender? Barry Manilow's *I Write The Song* — we wish he hadn't.

The Beatles

Hardened Beatles fans have got so used to the Fab Four's ditties being 'vandalised' that another hatchet job won't bother them. At least all the tunes are recognisable: some are commendably arranged, others will just annoy the purist.

Hard Day's Night gets a reggae beat whilst *And I Love Her* features a calypso-style bass line. Things improve with *We Can Work It Out*, *Get Back* (nice attempt at George Harrison's country guitar), and *Day Tripper* (best tune on the album).

Now to the songs that get 'null points'. Sadly, they're all Paul McCartney tear-jerkers. *Michelle* sounds like a funeral dirge, *Yesterday* lacks feeling and *Eleanor Rigby* is played like a military march.

What lets this album down (it applies to Pop Hits too) is that melody lines are altered to simplify them; that's annoying for such well-known tunes. You can overcome that by playing it your way in Performance mode.

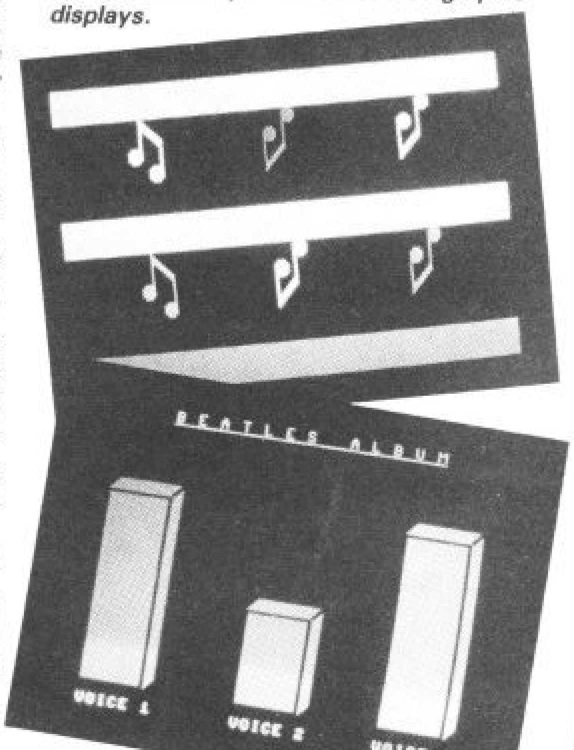
Secondly, the same 'sound' is generally chosen for melody lines, which makes them tedious after a while. There's no lack of invention in the backing. In fact, the variety of sounds is impressive. So why not use them up front?

Popular Classics

Don't be put off by the title, you've probably heard all the tunes on this album, the emphasis being on Tchaikovsky and Mozart. The former gets four pieces including part of The Nutcracker suite. Unfortunately, his cfferings show both the best and the worst.

Capriccio Italian (not a frothy coffee) is pacey, full of whirling cadenzas and generally a treat. That goes for Brahms' *Hungarian Dance* too; both sound like fairground organ music. But *Romeo and Juliet* fails miserably. Remember how it

Better than a video jukebox? Each tune is accompanied by a choice of two graphic displays.



sounded at the movies — sob, sob.

And that's the problem: how do you make pieces designed for an orchestra sound reasonable with only three 'voices'? They've tried to do it by cramming the accompaniment with complex arrangements. Sometimes they work (Mozart's *Night Music*, Bizet's *Toreodor Song*), and sometimes they suffer by being too ambitious, like Grieg's *Hall of the Mountain King* and Strauss' *Emperor Waltz*.

Conclusions

If these albums were for listening only, you'd get bored with them pretty quickly. The fact that you can play along in a variety of ways overcomes any musical criticisms. The makers have had to compromise: they've had to use well-known tunes and arrange them simply, and they've overcome the limitations of the 64's SID chip.

On the whole, the result is a pretty impressive piece of programming. As a package, these programs have educational value for the musical beginner who's impatient to produce impressive sounds straightaway. For the rest of us, they prove what a wonderful little machine the 64 really is.

Bohdan Buciak

- Music Maker Playalong Albums
- Commodore UK
  1 Hunters Road,
  Weldon, Corby,
  Northants NN17 1QX,
  Tel: 0356 205555.
- £9.95 each (tape/disk)

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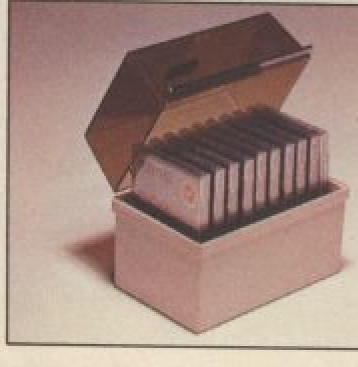




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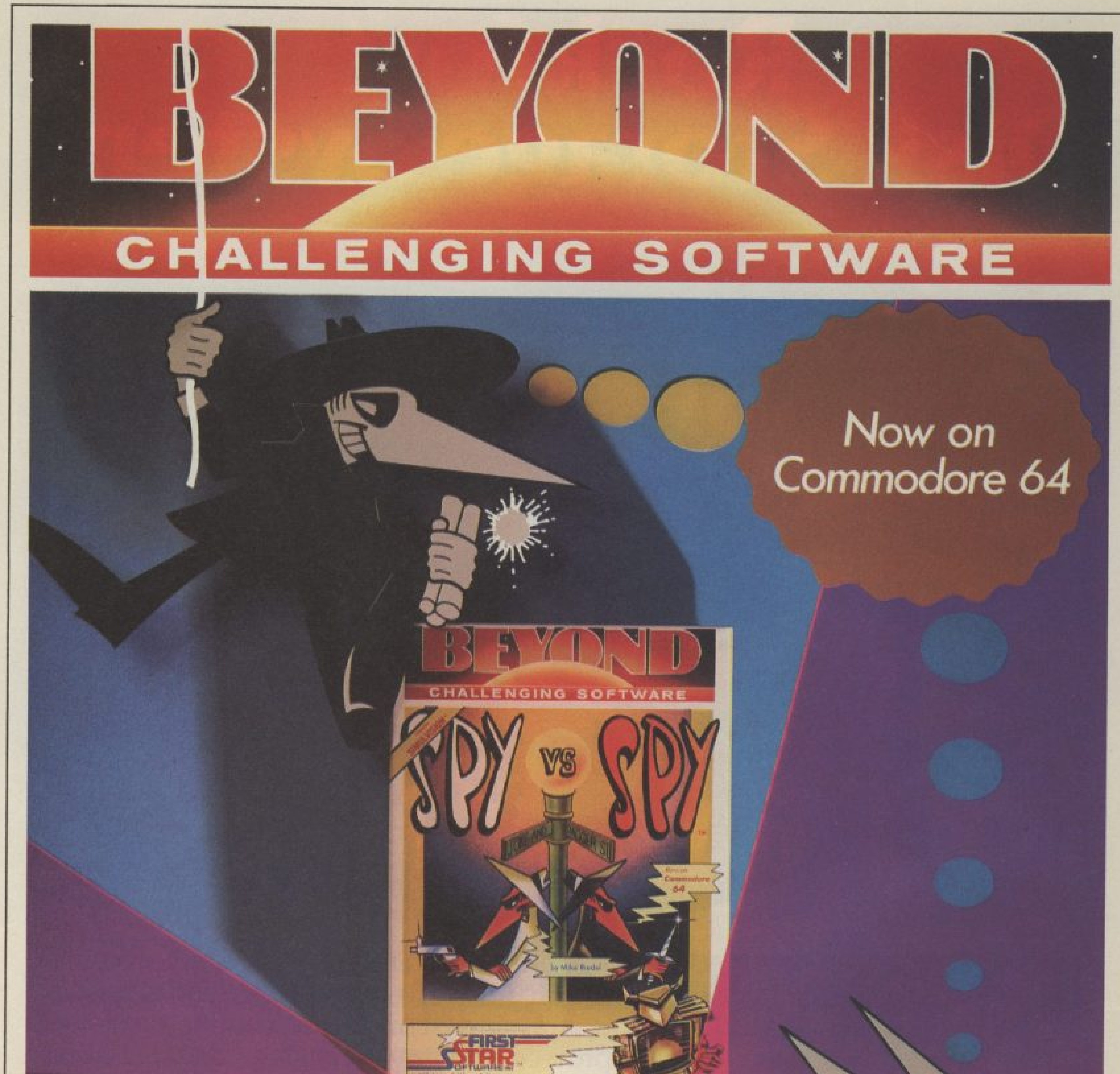
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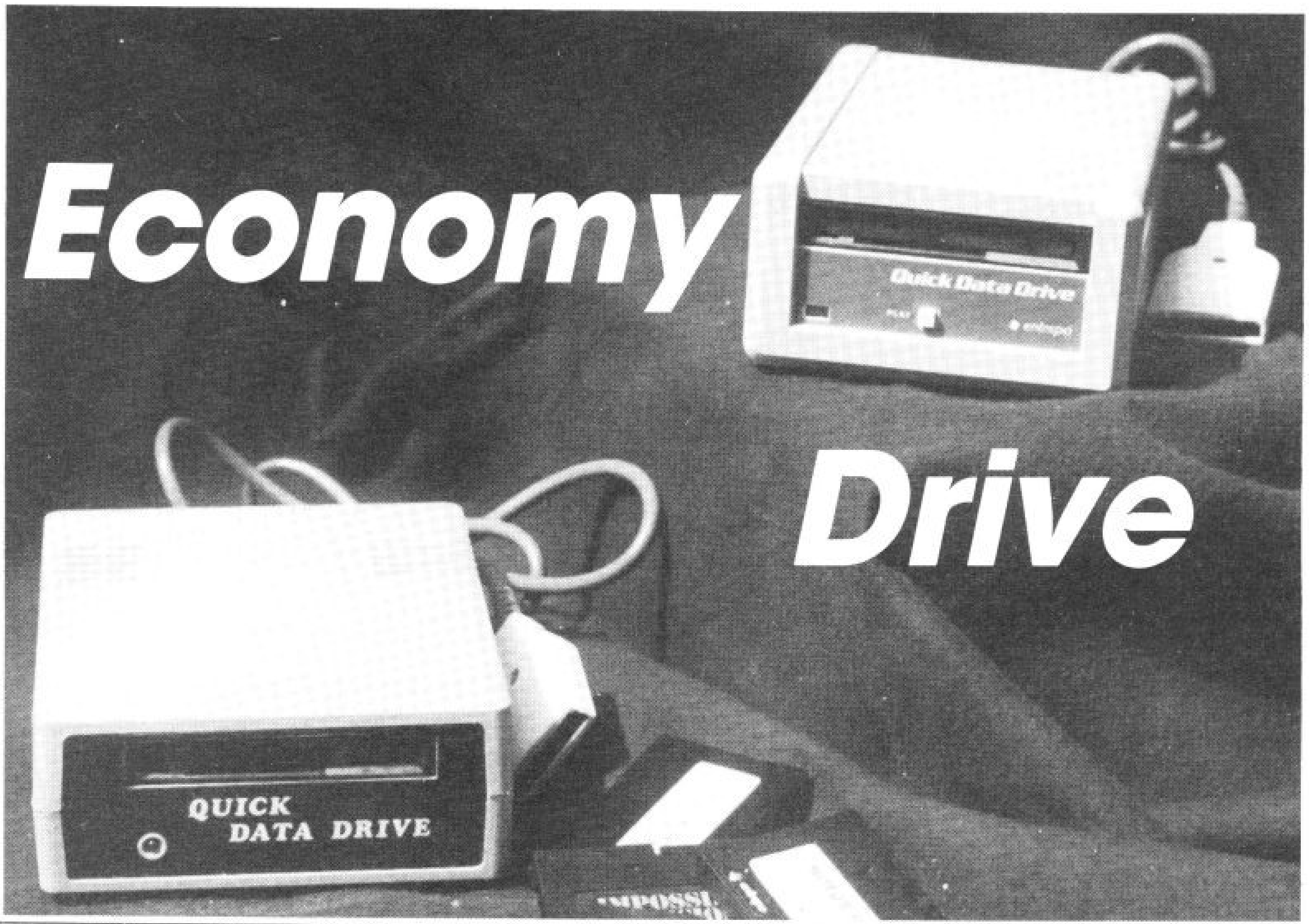
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Economy Drive



Two Commodore 64 waferdrives reviewed

by Chris Durham

Can't afford a disk drive for your Vic or 64? Slow-loading cassettes drive you up the wall? Now there's a solution called the "wafer drive", a device that runs fifteen times faster than a cassette but costs less than half the price of a 1541. Two almost identical versions are now available from Audiogenic and Dean Electronics. How did they shape up?

There are a number of misconceptions about waferdrives, so it's best to clear those up at the start. Both of the units on test are single drives which use a continuous tape as the storage medium; the tape being contained in a hard plastic case, with a shutter to protect the tape when it is not in the machine — rather like a mini videotape. The tape is extremely narrow, only 1½mm. It is driven by a drive shaft pressing against a rubber capstan, exactly the same as a normal cassette recorder.

There is only one control on these waferdrives; a small button that acts as a 'play' key when the unit is first switched on to boot up the operating system for the drives. One major difference between these drives and a normal cassette recorder is that there is a directory on each tape which can be read and displayed on the screen, rather like a disk drive.

Spot the difference

The original intention was to compare the two drives in a 'head to head' review. But apart from a slight physical difference in the case, the drives are identical in every respect, even down to both having the same name! Unless otherwise stated therefore, all comments are equally applicable to both drives.

Even the physical differences are mainly cosmetic, the Dean Electronics **Quick Data Drive** is slightly larger and has the play button at the back of the unit; the **Entrepo Drive** from Audiogenic has it's play button at the front to be easily accessible. The operating system wafer (of which more later) is completely interchangeable; in fact the two drives will work together without any problem at all since the operating system allows two drives to be daisy-chained (or one drive plus the datasette).

The hardware

The Entrepo unit has a metal case while the Dean Electronics unit has a plastic exterior. This means that although the Entrepo unit is smaller it is also heavier. The metal unit would presumably stand up to a lot more knocks than the plastic one, but since the delicate part in both units is the drive mechanism this is unlikely to cause any problems.

Both units have a red light to show when the tape is being accessed and both have a flap over the tape slot to prevent dust and other debris entering the drive.

There is a lead which plugs into the cassette port and the port is also reproduced at the back of the drive. This is to allow the daisy-chaining of the second unit. Like the datasette, both units take power from the 64. Note that only two devices can be accessed, so putting on two waferdrives will prevent the use of the datasette.

Load and Save

One slightly annoying point if you are using the datasette with the waferdrive is that the motor is only switched on when a command is actioned; i.e. you cannot rewind a tape without typing a dummy 'load' command because the waferdrive is totally under computer control and turns the motor off at the end of each access. However, this does mean that there is no fiddling about with 'PRESS PLAY ON TAPE' when using the Waferdrive since everything is automatic.

The waferdrives are supplied with a separate operating system which ▷

effectively takes over from the normal 64's Basic for cassette control. This is contained on a wafer-tape and must be loaded into the computer immediately after switching on. It is called the 'Quick Operating System' (QOS) because in addition to controlling the waferdrive it also speeds up the data rate on program and file transfers to something approaching that of the 1541 disk drive.

Table 1 shows the results of loading a 10K program from the three devices. Although the waferdrive figure looks impressive, the wafer only had 3 other small files on it. Had the wanted program been nearer the end of a large tape then this would have been reflected in a longer load time.

In case you are wondering how a continuous tape can have an end, there is a metal strip on the tape which acts as a reference point. The first thing on the tape is the directory, which must be read before the drive knows where to find the file. So if there are already a number of files on the wafer, these must be skipped over before the correct one is read in.

The tape does wind on at fast speed, but you must remember that the waferdrive is a serial device and cannot hope to compete directly with a disk drive when searching for files. This is noticeable when saving a small file.

1541 Disk Drive	**26 secs**
Waferdrive	**30 secs**
C2N Cass Recorder	**201 secs**

Table 1 — 10K program load

Table 2 shows the result of saving a small file on an archive disk/tape; i.e. one that already has a large number of files on. Because the cassette is able to continue saving from where it stopped after the previous save it is nearly twice as fast as the waferdrive, which has to update the directory each time it does a save.

The figures in both tables represent the extremes and show that the savings in time quoted for the waferdrive are very dependent on the type of access, the amount of data already on the wafer and also the size of wafer. Wafer tapes are available in different lengths; the longer wafers have longer access time, but hold more data.

1541 Disk Drive	**6 secs**
Waferdrive	**54 secs**
C2N Cass Recorder	**28 secs**

Table 2 — Small program save

One point to note is that despite doing numerous tests of different file sizes etc, I was never able to get a speed increase of 15 over the datasette, nor beat the speed of the 1541 (both of these claims are made in the manuals). This *could* have been due to the size of the blank wafers that I was using (64K), so the moral must be to always use the smallest possible tape length (16K) conversant with the application.

Utilities

In addition to the QOS, several utilities are incorporated into a 'File Management Utility' (FMU). These include the ability to copy from disk or cassette to wafer and vice-versa (unprotected software only). You can also read the directory, format a new wafer, make a backup of the QOS wafer and even clean the drive by running a special cleaning wafer.

Although the FMU has to be 'loaded' it is, in fact, resident all the time under normal conditions. It only has to be reloaded from the wafer if another program has been run which has overwritten the area of memory used by the FMU machine code. Although both drives will work equally well with either a Vic-20 or a 64, the QOS is different for each machine. Originally it was intended that both versions would be present on all QOS wafers, the computer automatically loading the correct version. It now appears that this is no longer the case and you must specify which computer you want to use the drive with. This is unfortunate for anyone with both computers, unless they can get hold of both QOS wafers.



Games and Business Software

One of the early doubts about non-standard devices such as waferdrives was whether or not there would be any software supplied in the necessary format. I am glad to say that at least some software has been transferred to waferdrives, although at present the prices are more than the equivalent cassette versions.

Audiogenic has both its range of games and business software available on wafers and hopes to release some of their business software for the 64 on this medium. The total list of titles is currently about 30 and includes games like *'Impossible Mission'* and at least one word-processor.

Dean Electronics supplies three games with its drive; all worked perfectly and loaded faster than the cassette version. The problem, at least until you know, is that they will *not* load under QOS; they have to be loaded with a normal Basic load command otherwise the drive spins, but produces nothing more than a 'device timeout' message. If you have already loaded QOS then you have to switch the computer off and on again before loading the game.

The manuals

It was here that Entrepo scores slightly over Dean Electronics. The latter's manual seems at first glance to be identical to the Entrepo one, but this is not quite so. There are a number of errors in both manuals, since there have been some changes to the facilities available; Entrepo cover these in an errata sheet, but Dean Electronics didn't supply a similar sheet with their review copy, although they say one will be issued in future.

Secondly, there are a couple of diagrams in the Dean manual which are either incorrectly referenced or fail to show what is being mentioned. There is a small write protect tab on the side of the wafer, rather like those found on the back of a cassette; this is clearly shown in the Entrepo manual, but the Dean Electronics manual has a photograph of the *top* of a wafer where the tab can't be seen.

Apart from the faults mentioned, both manuals show how to use the new commands, which are virtually identical to the normal Basic commands. They also cover any questions the customer may have, like 'what is QOS?' or 'How many files are allowed?' (The answer to that is 255, but I don't advise you to try to get that many on — you'll lose all the speed advantages).

Conclusions

At £79.95 for the Entrepo drive and £99.95 for the Dean Electronics drive, neither is a cheap alternative to the datasette. Whether they are a cheap alternative to a disk drive depends on what you want them for.

If you write a lot of your own software and want faster access, a directory and a compact medium then these devices fit the bill nicely. If you intend buying commercial software however, then look very hard at what software is available on wafer before committing yourself.

I enjoyed using them, but at the end of the day I think they will stand or fall on the available software. Without it they have little chance of making real headway against the 1541, but if sufficient support is forthcoming then waferdrives could become a very popular peripheral.

As to which of the two drives is the better buy, there is little to choose between them except on price. Since that is the case I have to recommend the Entrepo drive; smaller, more robust and a slightly better manual, plus a saving of £20 over the Dean Electronics Drive.

Device: Entrepo Quick Data Drive
Supplier: Audiogenic
Address: PO Box 88, Reading, Berks.
Price: £79.95

Device: Quick Data Drive
Supplier: Dean Electronics (also W.H. Smiths)
Address: Glendale Park, Fernbank Road, Ascot, Berks.
Price: £99.95

HOT SHOTS!



Was it only a month ago that we were gossiping last? It doesn't seem that long ago, but still I've got so much to tell you. Come closer...

Remember I told you a couple of issues back that you were lucky enough to have your own **3-2-1** game on the way. It was, as I reported, to have been advertised on TV with the jolly jokes of **Ted Rogers**. Seen the ad yet?

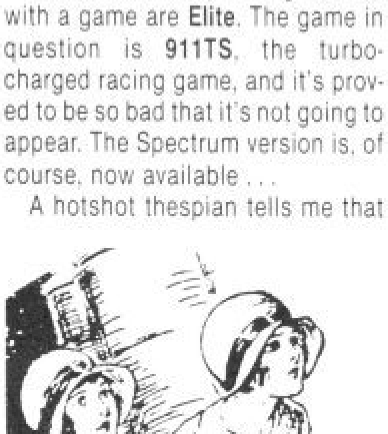
Doubt it, by the time you read this they might just have got things sorted out, because they ran into trouble with the IBA. No, it wasn't the quality of Ted's jokes, but the wording of the ad. Apparently the phrase 'guaranteed prize' constituted a lottery and the whole ad had to be redone, in the words of Frank Moya at Micro Computer International, "Causing us an eight week delay at considerable cost". I'm still waiting with bated breath to receive my review copy and a miniature dusty bin...

Another company having hassles with a game are **Elite**. The game in question is **911TS**, the turbo-charged racing game, and it's proved to be so bad that it's not going to appear. The Spectrum version is, of course, now available...

A hotshot thespian tells me that **Jeff Raggett**, late of Artic Computing, is set for stardom on Broadway. Well, Chiswick Amateur Dramatic Society actually. Seems he's playing Howard Keel's leading role in their rendition of the hit country bumpkin musical, **Oklahoma!** — pass me the pumpkin pie, Ted.Jeff recently appeared in EMAP's offices for another part, as an Advertising Manager. He didn't get it.

Somebody else who's also been making public appearances in a leading role is **Kevin Toms**. A lewd little hotshotophile spotted he and his missus posing for pictures in a well-known 'men's' magazine's Reader's Wives section. A pony should ensure the picture is never reprinted on these pages Kev, in crisp fivers if you please. One wonders what his next game will be called now.. **Porno Star** maybe...

Also of a risque nature is **St Bride's School** in Ireland, an institution where grown-up girls frolic in gymslips, white socks and bonnets and relive their missed childhoods (see pic). It stirred up quite a lot of interest last year when the national newspapers got hold of the story and suggested that the schools idea of fun was a bit **kinky** with *discipline* being a major element of the place.



''Look Felicity, it's that gorgeous hunk from Hotshots''

I tell you all this because the school is now also a software house with an adventure game under its bonnet called **The Secret of St Bride's**, featuring a heroine called Trixie Trinian who goes to the school for "a taste of the storybook boarding school life and finds it just a little too real"... Sounds interesting I thought. Sounds very interesting.

Grabbing a dirty mac and a pack of sweets I rang the headmistress herself, a woman with a very prim kind of voice. Before I knew what was happening she had me standing in the corner. "No it's not adult software. The newspapers just blew the whole sex element up, it's nothing of the sort. The game itself is an adventure which takes our heroine through time." Apparently there's a prize too. A free trip? I wondered. "No, free software for life". I shall be reviewing the game as soon as I get my sweaty palms on it, and doing a profile of the place as soon as I can get into my old school shorts ... Well the thought of it is all too much for me; I'm going to have to lie down till next month ... See you then.

NEWS

GOLDEN AWARDS: Five titles marketed by US Gold in this country have just received nationwide recognition in America by winning their categories in the Electronic Games Design Awards.

The Arkies, as they're known, awarded each year by the magazine Electronic Trader, are the software equivalent of Oscars and Grammies.

The games which won five out of the twelve possible awards are *Blue Max* — Best Computer Action Game, *Buck Rogers* — Best Action Videogame, *Congo Bongo* — for audio visual effects, *Miner 2049er* — Mini Arcade Game of the Year and *Ultima III* — Computer Game of the Year.

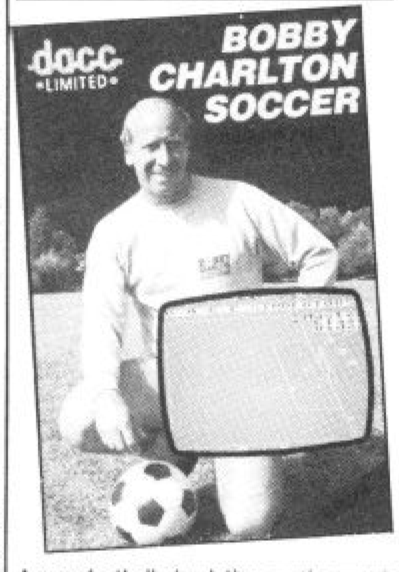
Ultima III is not yet released in the UK but we're promised that the game is on its way and that it's absolutely wonderful — very complicated, for the serious gamesplayer only. **Commodore User** is batoning down the hatches and getting in the cans in readiness for a real test of endurance.

RISING SUNS: Ocean has acquired the rights to eight of Japan's top arcade games, produced by the arcade house of Konami.

The deal follows the success of the *World Series Baseball* title which is currently doing well in the charts and was signed from Konami on the Imagine label.

The first titles should be out within weeks. These are *Hypersports* and *Konami's Tennis* and they'll be selling for £8.95. Also on the way is *Yie Ar Kung-Fu*, *Hyper Rally* and a classroom farce called *Mike*. I'm flattered that my schoolboy exploits should now be recognised.

PREVIEWS



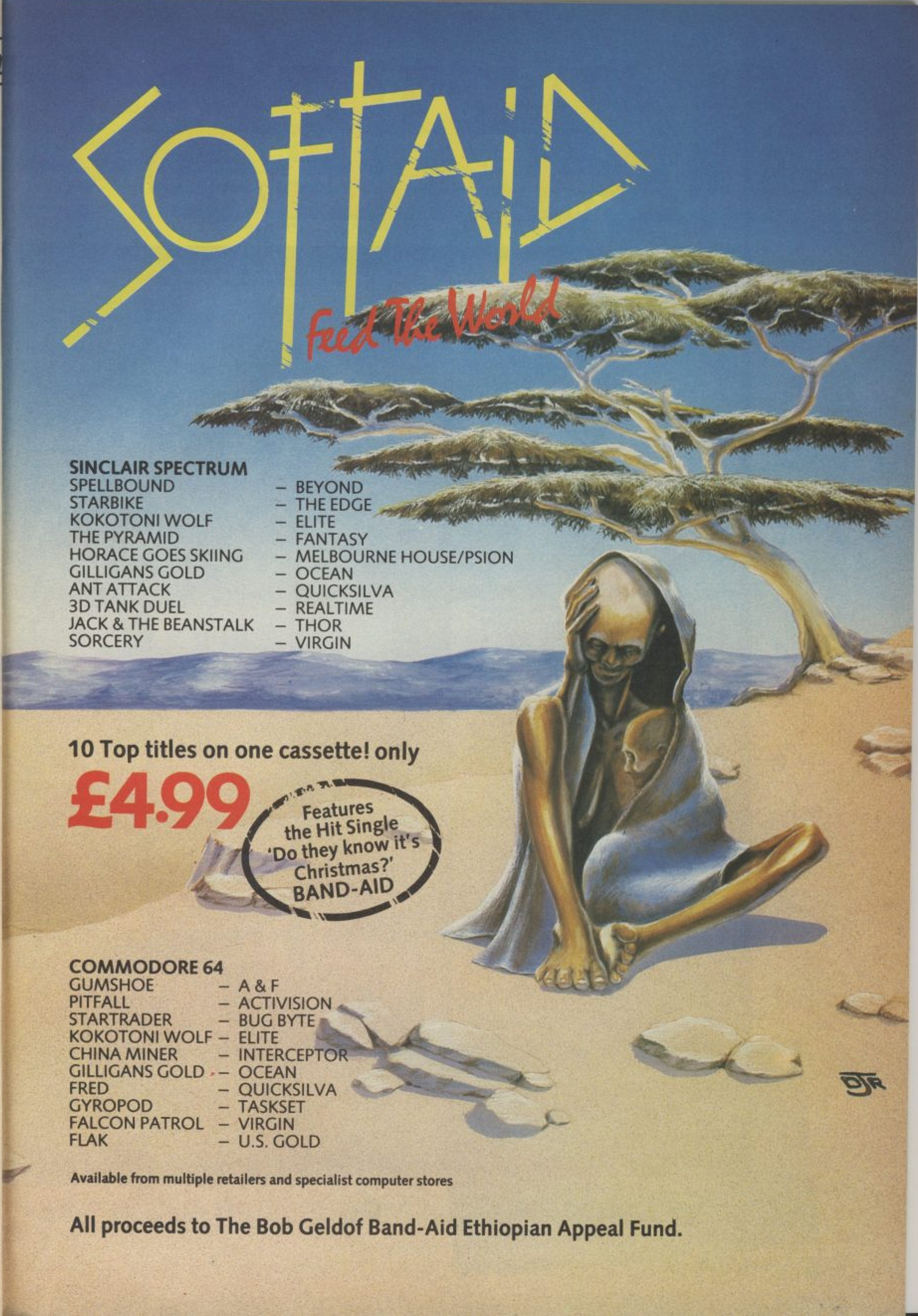
A new football simulation on the way is *Bobby Charlton's Soccer*. The game is not just endorsed by the old Hotshot himself, claim the company, but involved his guidance and advice throughout. It attempts to provide a thorough simulation of the whole game and thus mixes elements of strategy with arcade gamesplay. Sounds like a combination of *Football Manager* and *International Soccer*, but can it be as good as either of them? The first phase is the managerial mode whereby you program your team's abilities, setting levels for skill, stamina and accuracy. Once you've covered all this you move onto the game, controlling passing, shooting and tackling with the joystick. I'll be refereeing this one next month.



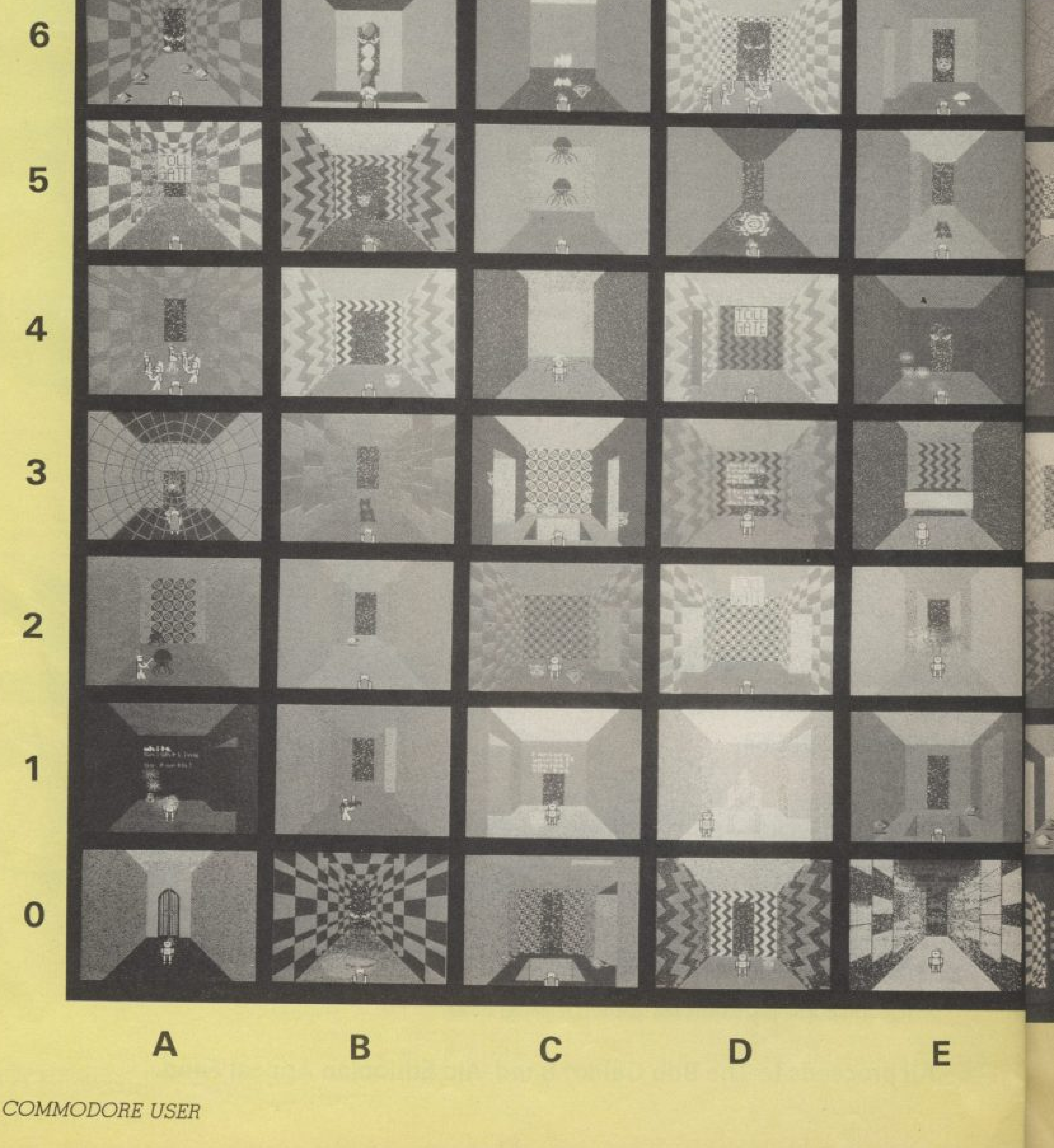
Exclusively reviewed next month is the big fight game from Elite, *Frank Bruno's Boxing*. This is another simulation made with the aid of expert advice — this time from Frank Bruno and Terry Lawless. The object of the game is to become Heavyweight Champion of the world, and to do that you have to beat eight boxers in succession, each of which has a different style of fighting. As Frank Bruno you are able to punch in various ways, dodge and weave. You can also duck, but how Frank was able to give advice on that escapes me.

STOP PRESS

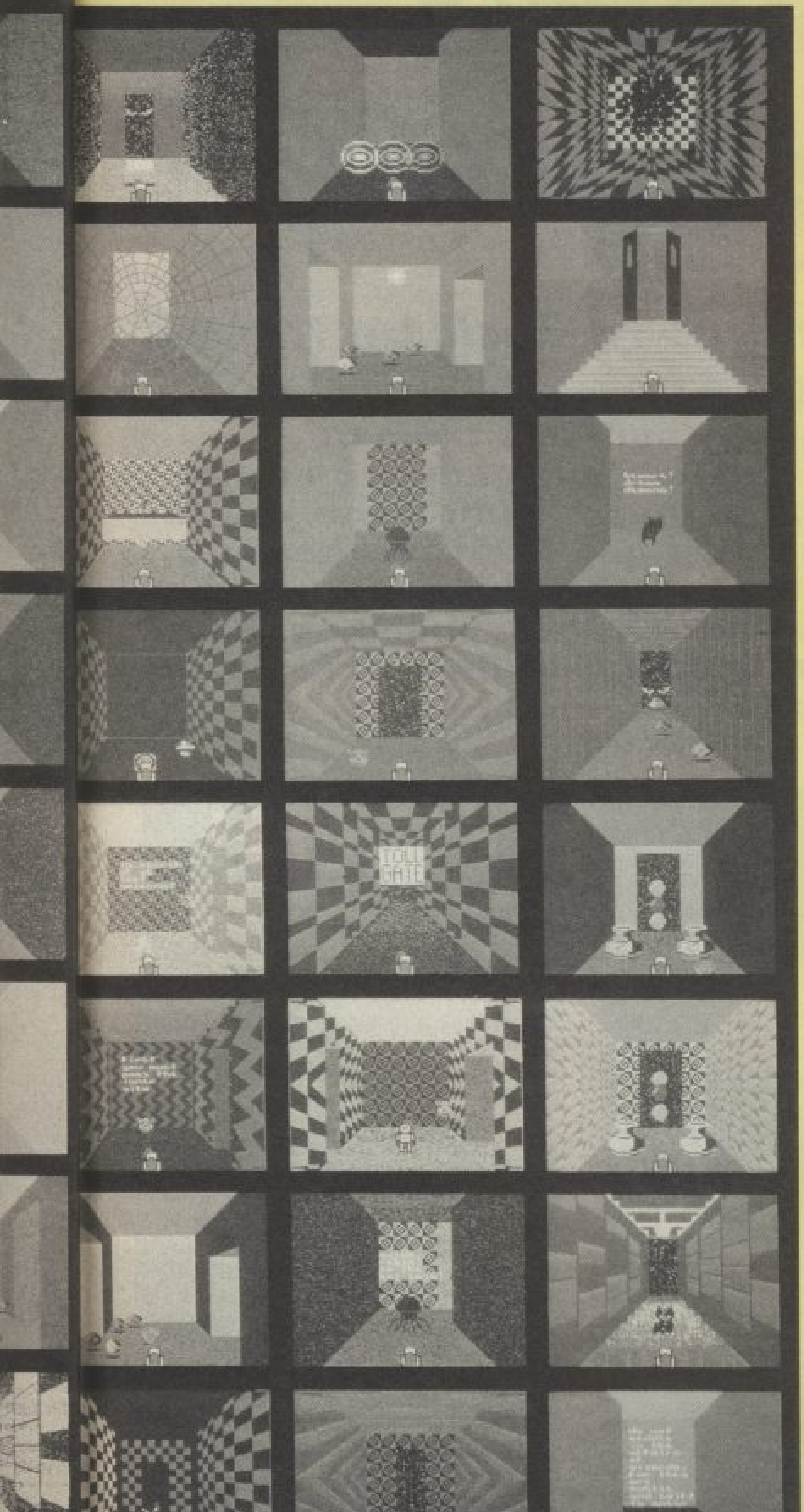
Hold the Hotshots page! US Gold have just signed a deal to distribute Epyx software in this country. They beat Beyond to the deal with cash up front. There's nothing as hot as Impossible Mission on the way though. You'll have to make do with Winter Games and Summer Games II instead.


SOFTAID
Feed The World
SINCLAIR SPECTRUM
SPELLBOUND – BEYOND
STARBIKE – THE EDGE
KOKOTONI WOLF – ELITE
THE PYRAMID – FANTASY
HORACE GOES SKIING – MELBOURNE HOUSE/PSION
GILLIGANS GOLD – OCEAN
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SORCERY – VIRGIN
10 Top titles on one cassette! only
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GUMSHOE – A & F
PITFALL – ACTIVISION
STARTRADER – BUG BYTE
KOKOTONI WOLF – ELITE
CHINA MINER – INTERCEPTOR
GILLIGANS GOLD – OCEAN
FRED – QUICKSILVA
GYROPOD – TASKSET
FALCON PATROL – VIRGIN
FLAK – U.S. GOLD
Available from multiple retailers and specialist computer stores
All proceeds to The Bob Geldof Band-Aid Ethiopian Appeal Fund.

GATES O



OF DAWN



F G H

This month's exclusive map is Charles Goodwin's medieval maze mystery *Gates of Dawn*. There's a lot to do, so whilst the instructions take you through the map with grid references, they don't always tell you what you have to do — some of the answers you'll have to work out for yourself. I suggest you draw an 8×8 grid and do a dotted arrow map of your own from the instructions. There are other ways of doing it as well, but this is the programmer's so it should be good enough for you.

You start, logically enough, in room A0. Proceed B1, pick up scroll and read it, this slows the blobs down. Pick up the bottle at the back and go C0, C1, B1, A2, A3. In A3 take the bottle which is full of oil, pour it out and you get 'well oiled'. This allows you to slip through the web. Go A4 pick up the hip flask and jar and proceed into A5. You have to pay a toll to go any further — give up the jar. Proceed A6, A7, B7, B6, pick up the mushroom, go B5 pick up crystal, B4, B3, B2 go out the door and come in again so if you're killed you face the right way. Pick up the ruby. Proceed B1, C1, C0, D0, E0, F0, G0, H1 drop a crystal in the water and it freezes over. H2. If you back straight out of this room you miss it altogether. Same applies to H3. Go H4, G5, G4, G3. Offer the toll gate a crystal. Go G2, G1, F1, E1, D1, D2, C2, C3, C4, C5, C6, C7. Pick up the flashing jewels you need these to get through. Come back through C6, C5. Here is a good place to eat your mushroom. This will make various invisible creatures visible. However, everything else now looks like a mushroom too for a while. Proceed C4, C3, collecting the flashing jewels/mushrooms. Go back through C4, C5, C6, C7. Then D7, D6, E6, E5, E4. Hopefully you have with you a second mushroom. Eat it and you'll shrink. You can now get under the block. Go through into F3, F4. Catching the roving mushroom reveals a hidden door which takes you into F5. There's another block in your way, under which is a jewel and a sword. Push the jewel out from under the block and it'll kill you off, but you have to do it because you need the sword and that's the only way to get it. Return F4, F3, E3, E2. Walk into the shimmering lights and they'll turn into apples — these will restore your strength. Proceed E1, D1. You should have a burning sword with you — use it on the block of ice. You get another sword, a different one which you'll need later. Swords are important from now on so collect them. Go D2, C2, C3, C4, C5, C6, C7, D7, E7, F7. Use the gemstone as a barrier. G7. In G6 catch the falling star. Into H6 you're nearly there but you're going to get attacked by four different nasties, and you'll need different swords for each of them. And finally H7. You'll have to find out what amazing experience you're in store for on your own.

WIN GATES OF DAWN

Thanks to Virgin's generosity we're able to offer you the chance of playing *Gates of Dawn* if you don't already possess it. We've got thirty, yes thirty, free copies to give away. All you have to do is answer this simple little question. Who wrote Ivanhoe?

Answer...

Name...

Address..

....

Send to Hotshots Competition, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU. Entries to arrive by 25 July.

Watch your Language

Alternatives to Basic on the 64

Nearly all home computers have the Basic language built into them as standard, and the Commodore 64 is no exception. But that doesn't mean you're stuck with Pokes and GOSUBs. There's a wealth of other languages just waiting to be explored. We've rounded up the most recent implementations of Forth, Pascal and COMAL — all readily available for the 64.

Forth is a high-level programming language like Basic, which has become the only real alternative to Basic and Assembler on both the Vic-20 and Commodore 64. It's 'compiled' rather than 'interpreted' and allows users to define their own commands, functions and procedures. It also approaches machine-code in execution speed. Originally designed to be a 'fourth-generation' language (hence the name), it never quite made it, despite being easy to use for beginners.

Pascal is probably the most popular programming language around, next to Basic. But it has confined itself more to generating professional and business software. it's a 'compiled' language, so it runs much faster than interpreted Basic. Pascal (named after the mathematician Blaise Pascal) is often described as an 'elegant' language because it encourages a systematic and discipline approach to programming.

COMAL is an acronym for 'common algorythmic language'. That phrase itself suggest that this is a highly structured programming language. COMAL is easy to use and provides listings that are far more comprehensible than Basic. Although it's been around for at least fifteen years, it's remained largely unheralded. Until recently, only 'public-domain' versions of COMAL were available.



Melbourne House's fast-loading version of Forth

FORTH

The latest version of Forth on the Commodore 64 comes from Melbourne House. It's called **Forth +** and comes on cassette for £14.95. A nice touch is that Pavloda Fast-loading is included, so you're up and running in around two minutes. But once loaded a few simple keystrokes convert it to disk orientation.

A 36 page pocket sized manual is provided which covers the major aspects of the implementation reasonably well. As usual it is not a tutorial in Forth — and you'll probably need reference books if you're a beginner. Over half the manual is devoted to a reference guide of the standard FIG dictionary. The rest covers the specialities of this version which really make it different from other versions.

There are two main departures from the FIG standard both of which make use of features for which the 64 is renowned. Historically most Forth systems have treated disk storage as virtual memory, loading blocks of source code into RAM and "forgetting" them when done. In this way large applications could run economically not grabbing huge chunks of memory as they go.

The 64 as we know from the Advertising Standards people has a jumbo sized memory. *Forth +* makes use of this feature

instead of referencing disk or tape continually. Thus tape users are not bedevilled by extraordinary loading times or where on tape block 25 may be. Furthermore when a program has been debugged it may be saved as just that, re-loaded and run by a SYS command without even the need to re-load the Forth operating system each time. What a splendid way to write and save programs!

In addition, your programming is made easier because you can actually forget all those hundreds of POKEs needed to create music, sprites, graphics etc. These are all pre-defined as *Forth+* words that only need you to specify the parameters. There are INK, BORDER, HRG (for high resolution graphics) PLOT, sprite defining and moving words, FREQ PULSE and many more. Games enthusiasts may even use JOYSTICK and PADDLE!

For the really dedicated there is the Forth Assembler. Beginners beware. This needs a full understanding of Forth and 6502 Assembly language, but (although I have never actually put it into practice) should allow you with relative ease to mix high level Forth and machine-code routines for that extra speed and gloss.

After a little time with the 64, I found just about everything checks out. Like any new operating system it takes a little time to get used to it. After that I reckon that with *Forth+* I was as near to heaven as I have been for many a moon. My only problem, unsolved because I had too little time, was that I could not open any files to other devices. I suspect that invoking Kernal routines could be the way to do it, but, as said, with care.

As a bonus a game is also provided on the tape which will give some hints on how to use *Forth+*. To play it, though, you'll need a joystick.

This version of Forth is more attuned to the 64 than any other I have seen. For what is certainly a superior operating system than the resident Basic (I am biased — so what?) including syntax error trapping, compiled speed, assembly language and access to 64 sound and graphics. At £14.95, can you afford to ignore such an offer?

Richard Hunt

- **Forth +**
- **Melbourne House**
  Castle Yard House
  Castle Yard
  Richmond
  TW10 6TF
  01-940 6064
- **£14.95**
- **not to be missed**

PASCAL

Of the many languages developed that rectify the niggling faults in Basic, Pascal has recently become the most popular. There are several versions around on the 64, but the most recent is **Pascal 64** from First



First Publishing's Pascal 64 is available only on disk

Publishing. It's a disk-base compiler costing £34.95.

Most 64 compilers are disk-based as they tend to be pretty big; 16K to 32K typically and this would leave little RAM for the programs and machine-code produced by the compiler.

Pascal 64 employs some protection method that cause it to misload quite frequently — at least my copy did. I started by reading the manual several times and had high expectations but as I tested it, several errors arose and I became somewhat disillusioned.

The first problem I encountered was that the command to load the compiler kept on coming up with "? FILE NOT FOUND ERROR". An examination of the directory showed that a LOAD "BOOT", 8 was needed, not what the manual said.

Having programmed in Pascal for several years now I was surprised to find that several test programs I entered all gave syntax errors. The fault lay with the compiler in that it had to have all identifiers (keywords and operators) separated by spaces — even a space between WRITELN and (I) in the statement WRITELN (I). Normal Pascal is not quite so strict.

Two words can be used to describe *Pascal 64*: user unfriendly. The whole process of editing and running the program involves the following process:

- Load up program
- Change it
- Save to disk
- Load compiles (one minute) then compile program to disk
- Load LOADER program and run it to load compiled code from disk
- Run or save machine-code

Depending on the size of your program this can take from two to five minutes to do. If by accident you type in the wrong name to the compiler then it bombs out with a "FILE NOT FOUND ERROR" and has to be reloaded.

The Pascal syntax is a little unusual in places but anyone who learnt with a compiler should have little trouble moving onto others. The range of extensions to allow Commodore 64 facilities is not bad — these include string handling, sprites, poke and peek and graphics, plus an interrupt facility. It would be nice if it could also include inline machine code.

My impression of the compiler is that it is a pretty good piece of software but the authors have never let anyone else test it out. Certainly most English programmers put a space between PROGRAM and NAME in input prompts, but that is a minor quibble. More attention should have been paid to tidying up the 'front end' of the program and how it is used. In addition I would like to see a few big example programs included in the disk.

Despite the flaws in the software, the manual is an impressive 50-page ring bound affair. It explains how the compiler works and then gives a comprehensive overview of Pascal, its syntax, variables, maths operators, structures et al. The whole lot is interspersed with small programmed examples.

This is generally a good product but it's spoilt by a few errors and general unfriendliness. The code produced runs pretty fast and the ability to PEEK and POKE and SYS machine code means that this can be used to produce fast games and utilities. If a revised edition is brought out with these points attended to then I can happily recommend it.

David Bolton

- **Pascal 64**
- **First Publishing**
  Unit 20B,
  Horseshoe Road,
  Horseshoe Park,
  Pangbourne,
  Berks.
  07357 5244
- **£34.95**

COMAL

COMAL has its origins in Denmark in the early 1970s. Borge Christensen found his students were writing Basic programs that were difficult to understand, debug and maintain. Having read the ideas of Niklaus Wirth, the inventor of Pascal, Christensen collaborated with Benedict Loefstedt to improve on Basic. Its use in education meant that the new langauge had to be easy to use like Basic, but powerful like Pascal. The result was COMAL, Common Algorithmic Language. So now you know.

COMAL is now the recommended programming language for education in Denmark, Sweden, Eire and from 1986, Scotland. COMAL has developed quietly over the last four years. Its progress was monitored by International representatives of the users and industry and in 1982 a standard, called the COMAL Kernal, was finalised.

In December 1983 it was announced to the world. Since 1983 the COMAL cartridge for the Commodore 64 has been used by selected people to eliminate the bugs

and suggest improvements.

COMAL is available on a cartridge for the 64. It costs £49.99 and comes complete with 320-page manual and demonstration disk. It's currently available from ICPUG — more details later. With the inbuilt enhancements to allow easy use of the facilities of the Commodore 64, the cartridge turns the 64 into the most powerful home computer. It can access 152K bytes of memory with a future expansion of an extra 32K catered for.

COMAL's ease of use is shown by its editing environment, which includes the following: AUTO, RENUM, FIND and CHANGE. Lines are checked for syntax errors on entry. Sections of programs can easily be listed to printers, disks or cassettes.

Routines stored on disk or cassette can be merged into user programs without the worry about overwriting existing lines. Programming niceties, such as line indenting to highlight program structures, is catered for automatically, unlike Pascal where the user must do it himself.

COMAL caters for the following program structures:

- **IF . . THEN . . ELIF . . ELSE . . ENDIF**
- **CASE . . OF . . WHEN . . OTHERWISE . . ENDCASE**
- **REPEAT . . UNTIL**
- **WHILE . . DO . . ENDWHILE**
- **FOR . . TO . . STEP . . DO . . ENDFOR**
- **LOOP . . EXIT . . EXIT WHEN . . ENDLOOP**

An error handler structure is available for the programmer to trap errors or create his own error handling routines:

TRAP . . HANDLER . . ENDTRAP

The user can also define functions and procedures with two-way parameter passing and local variables.

The COMAL cartridge enhances the COMAL Kernal with eleven packages including commands to control paddles, joysticks and lightpens, plot high resolution graphics, define and control sprites, and play music. It also provides interrupt driven sprite movement for animation and interrupt driven playing of music.

A speciality of COMAL for the 64 is the ability to do Turtle graphics. Many of the commands of Commodore LOGO are implemented in the Turtle package so providing two Educational languages for the price of one. Special commands to support windowing techniques, WINDOW and VIEWPORT, are available for business applications.

To put the icing on the cake, there are a number of utilities:

- dump text or graphic screens to a printer, cassette or disk
- load text or graphic screens from cassette or disk
- redefine character sets
- function key defined on start-up to commonly used commands
- redefine function keys
- write COMAL routines in machine language and link into COMAL to form part of the language
- spare ROM socket provided in the cartridge for the user to add such routines in EPROM.

To sum up, COMAL is a language that suits educational needs. while at the same time providing facilities for commercial applications and games creation.

COMAL is being promoted in the UK Education field by ICPUG with technical support being provided by the COMAL Special Interest Group within ICPUG. For latest details of how to obtain the COMAL cartridge send a stamped addressed envelope to ICPUG at the address below.

Brian Grainger

- **COMAL cartridge**
- **ICPUG**
  45 Brookscroft,
  Linton Glade,
  Croydon, Surrey
  CR0 9NA
- **£49.99**
- **a must for COMAL addicts**



ARE YOU A COMPUTER ORPHAN?

With yet another load of new computers waiting to see daylight at next month's Consumer Electronics Show in Chicago, Dan Gutman speculates on the machines that have been and gone — like the Vic-20 — and argues against the current Stateside view that home computers are pretty useless objects.

Do you have "computer orphans" in England? A computer orphan is somebody who owns a computer which is no longer being made. In America, the computer industry has been so chaotic that we have literally *millions* of computer orphans. In the past two years, dozens of companies have attempted to market new computers and failed for one reason or another. After each machine has been discontinued, all the people who spent their good money to buy the thing are stuck with a box that will probably become obsolete very fast.

Here's just a few of he recent casualties in the United States. Texas Instruments killed their TI 99/4A (1,000,000 orphans). Timex/Sinclair killed their TS 1000 (1,000,000 orphans). Coleco killed their Adam (300,000 orphans). IBM killed their PCjr (300,000 orphans). Even Commodore has created a million orphans out there — the Commodore Vic-20 is no longer being made, at least not in the US.

As long as an orphaned machine still works, it's not such a big deal if the computer is no longer being made. But it *is* a big deal if you need to buy new parts, peripherals, or software. After a computer is no longer being manufactured, it generally becomes more difficult to find any new products for it. Companies would rather support the computers with "growth potential" So the old machines tend to slowly find their way into closets, basements and flea markets. (Do you have flea markets?)

The Great Depression

It may seem otherwise, but the computer situation in the States is pretty much a mess. The computer magazines don't usually come out and say it, but it's true. Orphaned computers are just a part of it. It seems like every week another company is laying off workers, shutting down a factory, or "filing for Chapter 11" (going bankrupt, in legal lingo).

Two years ago there were more than 200 computer magazines here. Now there are about 15 big ones left. Computers and software seem to be poorly made, so it's hit or miss when you bring something home from the store. Mixing and matching the various components of a computer system is very confusing, and the poorly-written documentation only makes it worse.



Homeless Vic — buddy can you spare a byte?

Prices are dropping every month, so people feel like they'd be stupid to buy any machine today. The price may be cut in half tomorrow. Or maybe the company will go out of business. It's not uncommon to hear people saying that the entire "computer revolution" was just a fad, like the hula hoop. This can be very unsettling to somebody like me, who makes a living writing about computers.

I've got to be honest about it, though. America has yet to fall in love with computers. Most businesses use them, but only about 13 per cent of American homes have them (compared with 20 per cent that have video recorders and 98 per cent that have TV sets).

To be or not to be

Probably the biggest criticism about computers in the United States is that they don't really serve any purpose. They don't do anything worthwhile. We don't *need* a computer. This criticism always burns me up. You could just as easily say we don't need dishwashers, television sets, or automobiles. We could wash our dishes by hand, ride bicycles to school and work, and read books. These items aren't necessities, they're luxuries. So is a computer. We don't *need* computers, but they are enjoyable and useful to some people, so they are a legitimate home appliance.

It always amazes me when people say computers don't serve any purpose. I can use a Commodore 64 to write this column, make greeting cards for my nephews, balance my budget, create a mailing list, play games, write music, or calculate my biorhythms if I want to. Even if we never found any other uses for a computer, I would be satisfied.

How many purposes does a can opener fill? It opens cans. Big deal. How many purposes does an electric light fill? It lights up. Big deal. You never hear anyone saying that can openers and electric lights have no purpose. Because can openers

Dan Gutman reports

and electric lights have a very simple, clearly-defined single purpose, they seem like useful things to have around the house. Ironically, the computer — which has *hundreds* of potential purposes — seems like it's useless to the American public. I can't figure it out.

One thing that should be kept in mind is that just ten years ago, we didn't *have* these things called personal computers. The first Apple computer went on sale in 1976 and that was followed hot-foot by the Commodore PET. That's an incredibly short time.

No wonder the industry is in such chaos today. It hasn't had the time to grow up and mature. Imagine what the motion picture industry was like ten years after the movie camera was invented. I'm sure it was just as crazy as the computer industry is today.

And just as exciting. Sometimes we forget that we're participating in the birth of a new medium. That doesn't happen every decade, or even every lifetime. What we're going through today is like the early days of movies, television, and radio. Fifty years from now, we'll be old and wise and our grand-children will sit on our laps and say things like, "What were typewriters like, Grandpa?" and "Who was Pac-Man?"

Don't laugh. It's going to happen.

(You can reply to this column directly by writing: Dan Gutman, P.O.B. 1882, Madison Sq. Station, New York NY 10159, USA)

● *Next month we'll be reporting from Commodore's stand at the Consumer Electronics Show in Chicago.*

US Hotline US Hotline US Hotline US Hotl

Beyond Basic on the C-16

Part 2: programming starts here

Last month we introduced the 16's built-in TEDMON monitor and the theory behind machine-code. With that lot out of the way, it's time to start some real programming. Don't worry, they're just a few short machine-code routines.

by Ken McMahon

```
ADDITION
2000 LDA #$05
2002 STA $2100
2005 LDA #$03
2007 STA $2101
200A LDA $2100
200D CLC
200E ADC $2101
2011 STA $2102
2014 BRK
```

```
SUBTRACTION
2000 LDA #$08
2002 STA $2100
2005 LDA #$03
2007 STA $2101
200A LDA $2100
200D SEC
200E SBC $2101
2011 STA $2102
2014 BRK
```

There are four programs in all. The first two show you how to add and subtract two eight bit numbers from a table in memory and store the result. The third program is designed to illustrate the relative speed of machine-code over Basic. It fills the screen with the letter A, then changes to B, and so on through the C16's entire character set — 255 in all including inverse characters.

The last program introduces some more complex programming techniques to achieve the same result more quickly and economically.

Addition And Subtraction

Enter TEDMON by typing MONITOR, or M SHIFT O for short, and type in the short ADDITION program from the listing. To do this, first type **A 2000 LDA #$05** and Return. Then, when you are prompted with A 2002, just type **STA 2100** and so on. When it's all in, type Return in response to the prompt, to exit the assembler.

Before you run the program, let's take a look at how it works. The first line should be familiar, as we've done something similar before. It LoaDs, the Accumulator with the number **$05**. The next instruction, **STA $2100**, STores the contents of **A ($05)** at memory location **$2100**.

The next two instructions work the same way. First **A** is loaded wioth **$03**, then it is stored at location **$2101**. The result of the program so far, is that we have two numbers **$05** and **$03** at successive memory locations **$2100** and **$2101**. Now to add them together.

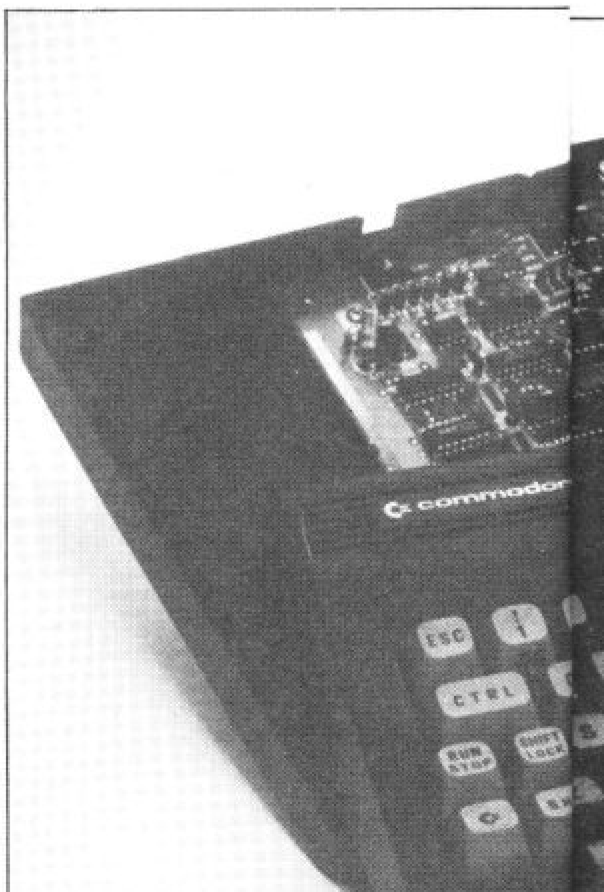
First, we must get the first number from its location in memory into The A Register. That's done by **LDA $2100**. Notice that this time there is no # sign. The # tells the computer to expect a literal value next.

If there is no #, then the computer interprets the next number as an address. For example: **LDA #$05** means "Load A with number $05". And **LDA $05** means "Load A with the contents of memory location $05".

A should now contain the contents of **$2100**, which we know is **$05** because we've just put it there. Before we add the next number there is one important thing to do: **CLC**.

This instruction CLears the Carry flag. The carry flag is used in sixteen bit addition and subtraction to indicate if a carry or a borrow has occurred in a previous operation. As we are doing an eight bit addition we're not interested in it, but it must still be cleared.

Here's why: **ADC $2101**. This instruction tells the computer to ADd with Carry the number at location **$2101** to the A register. If we had not cleared the carry flag, and it had been set, this would have muck-



ed up the calculation, giving us a result of one too many. Now the A register contains the sum of our two numbers, so we store the result back in memory.

STA $2102 STores the contents of **A** at the next location in the table. Finally the **BRK** instruction returns control to the monitor. Run the program by typing **G2000**. It won't take very long!

To see the result, type **M2100** and take a look at the first three numbers. You will see the two operands **$05** and **$03** in the first two positions, and in the third, the result, **$08**. Got it?

The second program, SUBTRACTION, works in much the same way. The major difference, apart from the numbers, is that instead of **ADC** the **SBC** (SuBtract with Carry) instruction is used. Also, this time we have SEt the Carry, to indicate that no borrow has occurred.

Screenfill

The next program, SCREENFILL, introduces some new techniques, like how to incorporate loops into your programs. Type it in the same way as the others, but *before* you run it, read the following explanation of how it works.

• LDY #$ 00 and **LDA #$ 01**.
Much the same thing as before, but this time we're using two registers. **A** contains **$01**, which is the ADCII code for the letter 'A'. **Y**, I'll come to in a minute.

• STA $0C00, Y, INY and **BNE 2004**.
A lot going on here. We're using a form of memory addressing called Indexed Addressing. The first instruction tells the computer to store the contents of **A** at address **$0C00**, plus an offset, **Y**.

At the moment **Y** is 0 so the computer stores **$01** at location **$0C00**. This address is the first position on the screen. As I said **$01** is the ASCII code for 'A', so a letter **A** appears in the first screen position.

INY simply INcrements the **Y** register, or, adds one to it. **BNE** is a bit trickier. It actually stands for Branch if Not Equal to zero. In English that means 'if the result of the last operation was zero, then loop back to address **$2004**, otherwise go straight on to the next instruction.

The result of the last operation wasn't zero, it was one, so round we go again. This time **Y = 1**, so the program stores an 'A' at **$0C00 + 1** or **$0C01**. It goes on like this, storing 'A's at successive screen positions until **Y** equals **$FF** (decimal 255).

This time, the **INY** instruction causes **Y** to go back to zero, the same way the counter on your cassette player does when it reaches 999. The condition for the **BNE** instruction is no longer satisfied, so the program breaks out of the loop.

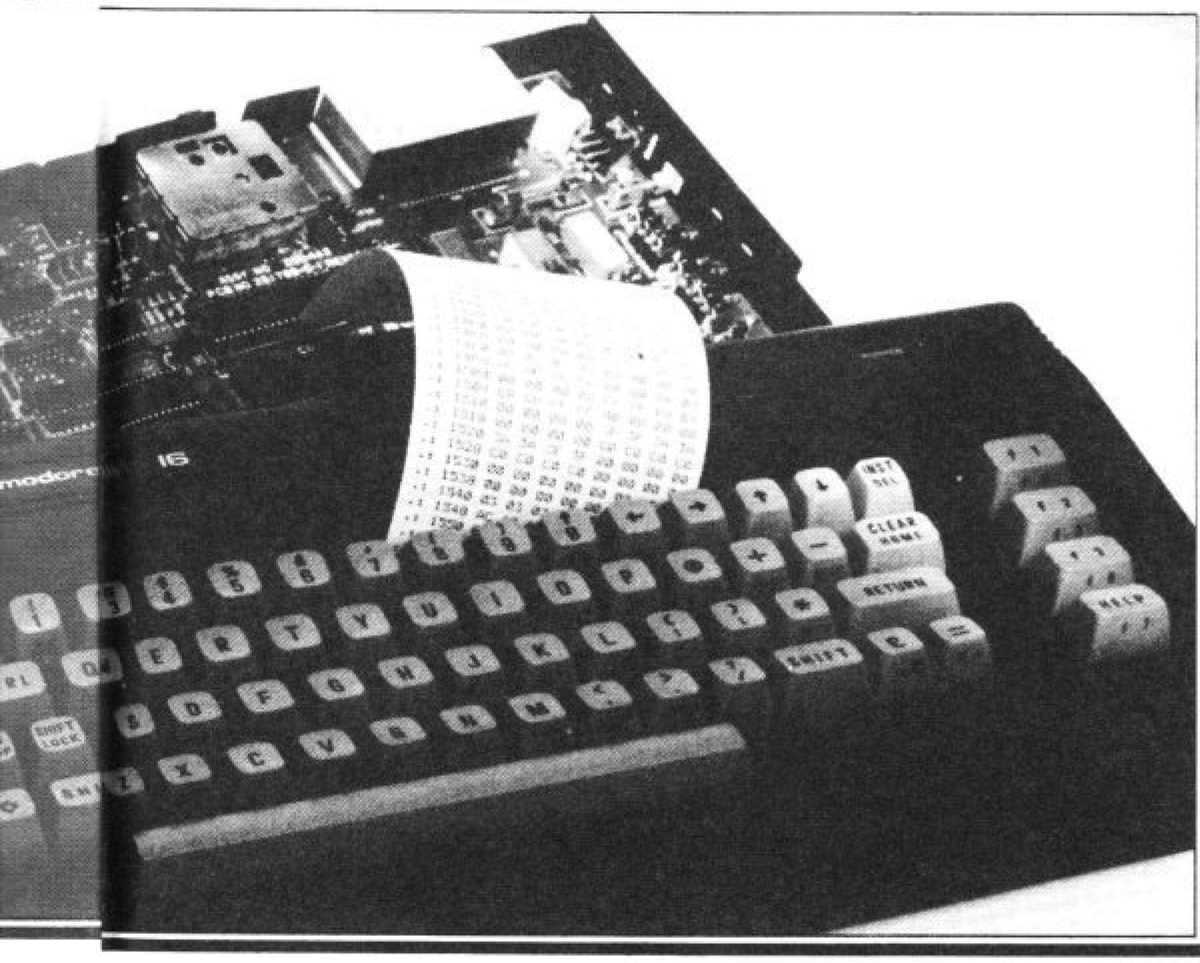
• STA $0D00, Y, INY and **BNE $2008**.
This section of the program, and the next two, are almost identical to the preceeding one. The only difference is that now we are filling up the next 256 byte block of screen memory, from **$0D00** to **$0DFF**. So, by the time we get to **CLC**, we have filled four 256 byte blocks of screen memory with the letter'A'. We've overdone things a bit as the screen only has 1000 locations, but this won't do any harm.

• ADC #$01, BNE $2004 and **RTS**.
Having cleared the carry flag, we can add 1 to the A register. It now contains 2, which is the ASCII code for the letter 'B'. Now the program loops right back to the start, and repeats the whole process with the letter 'B'. Only when this process has been repeated for the entire 256 characters does the **A** register revert to zero. Our big loop is then broken and the ReTurn from Subroutine instruction, **RTS** is carried out.

We've used **RTS** instead of **BRK** because this program is going to be run from Basic. When you've typed the program in, exit the monitor by typing X then Return. Clear the screen by holding down the SHIFT key and pressing CLR. Now type **SYS 8192** and RETURN. Be careful not to blink or you might miss it!

```
SCREENFILL

2000 LDY #$00
2002 LDA #$01
2004 STA $0C00,Y
2007 INY
2008 BNE $2004
200A STA $0D00,Y
200D INY
200E BNE $200A
2010 STA $0E00,Y
2013 INY
2014 BNE $2010
2016 STA $0F00,Y
2019 INY
201A BNE $2016
201C CLC
201D ADC #$01
201F BNE $2004
2021 RTS
```



SYS 8192 is a Basic command which means, 'go to the machine-code subroutine at location 8192 ($2000). To see how fast it really is, enter this short program which does the same thing in Basic:

10 FOR L = 1 TO 255
20 FOR N = 0 TO 999
30 POKE 3328 + N,L
40 NEXT N,L

Son of Screenfill

So machine-code really is fast! Now type in the last program, **SCREENFILL 2**, and run it the same way by leaving the Monitor and typing **SYS 8192**. The increase in speed will be imperceptible, but you can see from the listing that the program is six bytes shorter than the original version.

Going back to Screenfill for a second, you will remember that we filled the screen in four separate 256 byte blocks. This required four pieces of code which did exactly the same job, starting at differ-

Beyond Basic on the C-16

ent positions on the screen. In other words there's a certain amount of duplication involved.

Screenfill 2 cuts out the duplication by using the same piece of code to fill the successive blocks. To do this, two things are necessary. Firstly, a counter, so that the program knows when four blocks have been filled and the screen completed. Secondly, we must have some way of altering the screen address from within the program, so that when one block has been completed we can move on to the next.

The first problem is relatively easy to overcome. Screenfill uses two registers, 'A' to hold the code for the current letter, and **Y** as the offset for the current screen position. Fortunately there is one remaining register, **X** which we can use as a block counter.

To change the actual base address of the screen, we have to resort to a method known as Indirect indexed addressing. As you already know about indexing only the indirect aspect needs to be explained. Indirect addressing is a pretty complicated notion to get the hang of so let's start with this simple analogy.

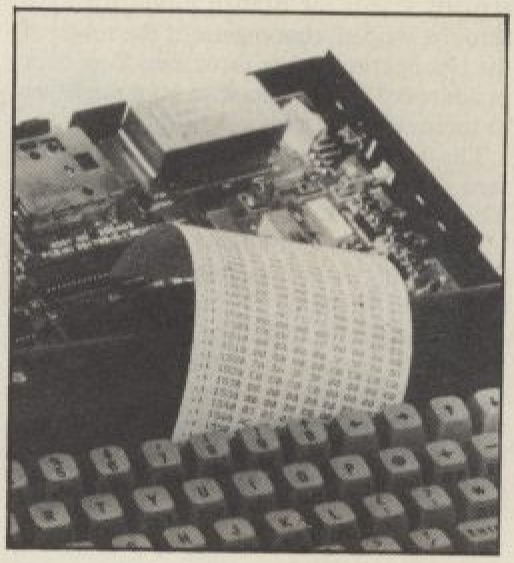
Suppose you wanted to telephone a friend. Well, you'd pick up the phone and dial his or her number, simple. But this particular friend is a bit of a jetsetter and moves around a lot. To get hold of him or her you'd have to dial the operator to get the number. This particular operator, being the obliging sort would also connect you.

Indirect addressing works in much the same way. Suppose you had a table in memory starting at **$C000A**. To store the contents of A at the first location in the table you would normally use **STA $C000**. But if we first store the address of our table in memory, say at **$FB**, we can access it at any time by telling the processor 'the address of the table is contained in memory location **$FB**'.

Going back to the analogy, **$FB** is the operator, **$0C00** is the telephone number and the data at **$0C00**'is your friend.

The advantage of doing things in this rather round about manner is that if, for some reason our table were to move, all that would need to be done is to change the pointer to it at **$FB**.

One last thing about indirect addressing. Because most addresses are sixteen bit numbers they require two bytes storage



space. So in the above examples the table addresses **$0C00** would actually be held at **$FB** and **$FC**. The convention is that they are stored in the form low byte/high byte, so **$FB** would contain **$00** and **$FC** would hold **$0C**.

Also, for reasons I won't go into except to say that it's more efficient, your address pointers must be contained in the first 256 bytes of memory from **$00** to **$FF** known as *page zero*. Unfortunately, most of these are taken up by the C16's operating system and cannot be tampered with. However, the four bytes from **SFB** to **$FE** are available, and these should be adequate for most programs.

If you've digested that lot then you're as ready as you'll ever be to unravel the program. As usual I'll explain what's happening as we go along.

• 2000 LDA #$01 and **2002 LDY #$00**
Exactly as before. **A** contains the character code for the first letter to fill the screen — 'A'. **Y** contains the offset for indexed addressing.

• 2004 STY $FB, 2006 LDX #$0C and **2008 STX $FC**
Here we're storing the location of the beginning of the screen ($0C00) at address **$FC**. As the index register **Y** already contains **$00** we've taken a short cut by simply storing it at **$FB**. The value of **Y** remains unchanged.

• 200A LDX #$04
X, remember, is the counter for our four blocks of screen memory to be filled.

• 200C STA ($FB), Y, 200E INY and **200F BNE $200C**
The first line is the indirect indexed addressing instruction. It means store the contents of register **A** at the address pointed to by location **$FB** plus an offset, **Y**. At the moment **Y** is zero, so a letter 'A' is stored at **$C000** — the first screen position. The loop works the same way as in the last program. **Y** is incremented and we go round again, filling 256 successive screen positions.

• 2011 INC $FC, 2013 DEX and **2014 BNE $200C**
When **Y** reaches 256 it increments to zero on the next pass and the loop is broken. The instruction at **2013** adds one to the contents of **$FC** — the high byte of the address pointer, effectively adding 256 to it. Locations **$FB** and **$FC** now contain the start address of the next block to be filled — **$0D00**.

Next we must decrement the block counter **X**, which will then indicate that there are three remaining blocks of screen to be filled. The program then loops back to fill the next block with 'A's and continues doing so until all four blocks are completed. At this point **X** decrements to zero and the condition for the loop is broken.

• 2016 CLC and **2017 ADC #$01 2019 BNE $2006** and **201B RTS**
Again, this is much the same as last time. One is added to the **A** register, which now contains 2 — the code for the letter 'B'. The program then loops back to **$2006** and goes through the whole process again for each subsequent character. The destination of the loop is quite important. Notice that the pointer is reloaded with the original start address of the screen and **X**, the block counter is reset.

This last program probably incorporates more new and complex ideas than the other three put together, so take a little time to try and understand how it works. Whilst we've only saved six bytes on the original, this way of doing things is obviously more efficient if large amounts of data are involved. Indirect indexed addressing is useful in many situations which involve the manipulation of data in the form of tables.

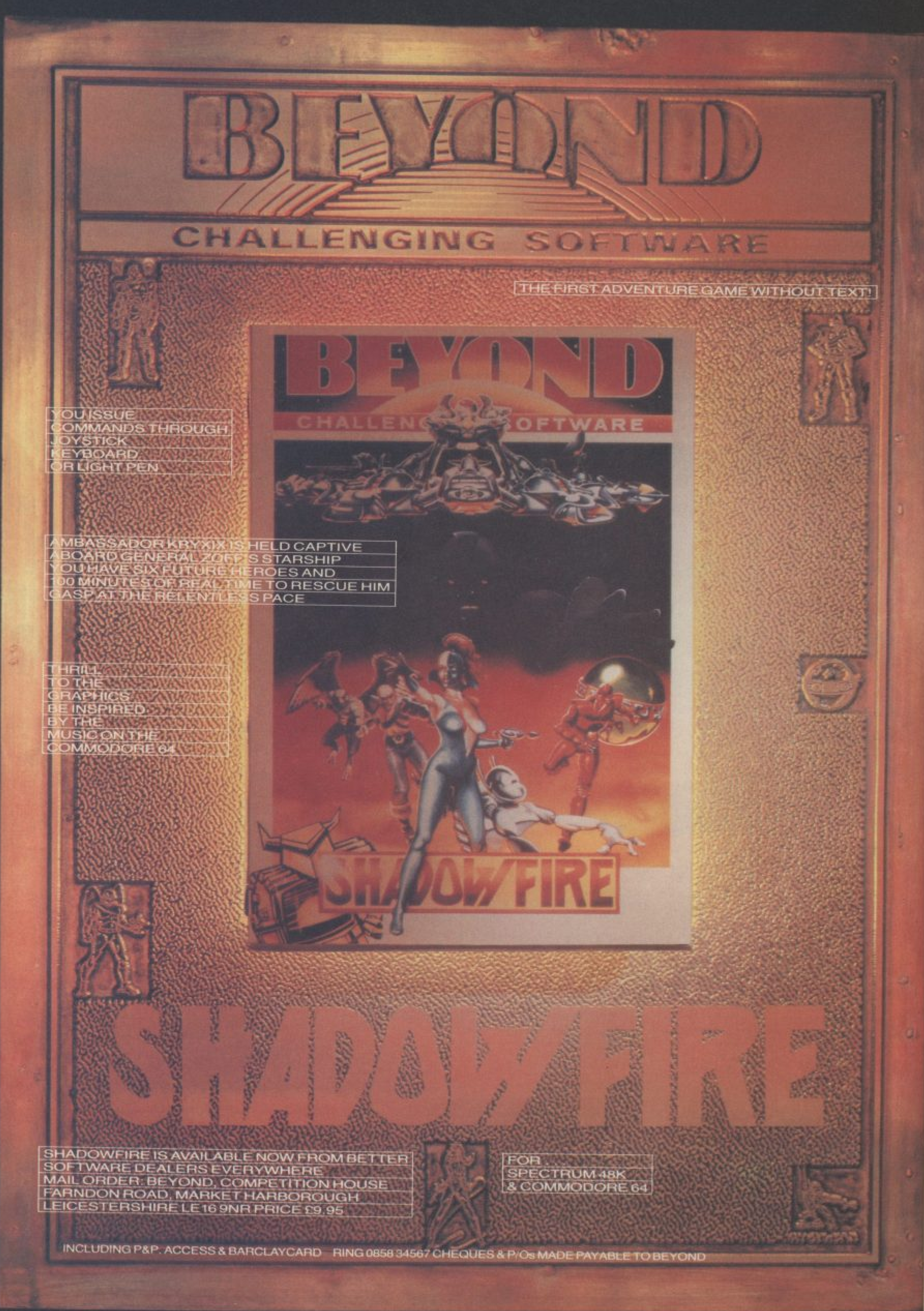
Even Further Beyond

There are two ways you can learn more about machine-code programming. The best way is by doing it. Try to adapt these programs to do the same thing a different way, who knows, you might be able to improve on them. If you want to find out more about the instruction set, learn about the different addressing modes, and pick up other techniques, there are plenty of books on the subject.

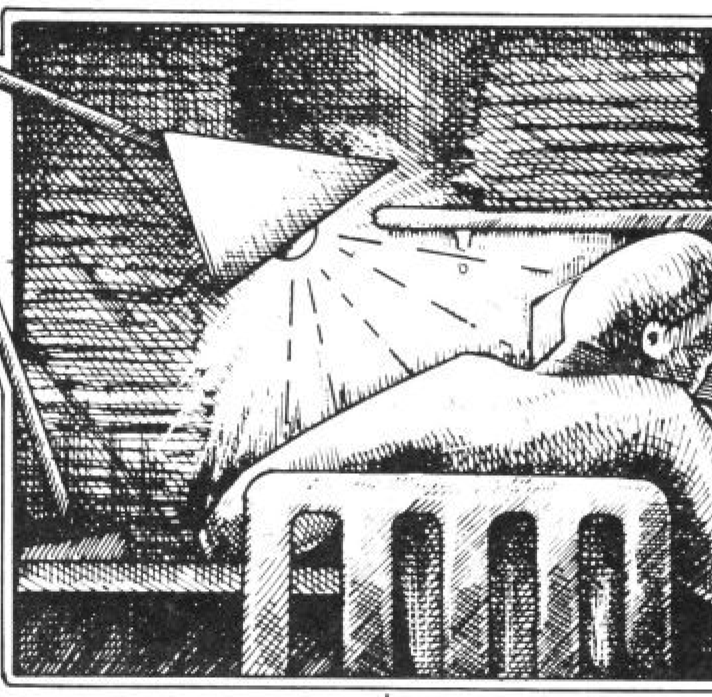
Now you have no excuse to turn weak at the knees whenever the dreaded words machine-code are mentioned. □

```
SCREENFILL 2
2000 LDA #$01
2002 LDY #$00
2004 STY $FB
2006 LDX #$0C
2008 STX $FC
200A.LDX #$04
200C STA($FB),Y
200E INY
200F BNE $200C
2011 INC $FC
2013 DEX
2014 BNE $200C
2016 CLC
2017 ADC #$01
2019 BNE $2006
201B RTS
```


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Tommy's Tips Tom



Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wadge of priceless information and indispensable advice. There's even the odd useful tip as well.

Dirty mains

***Dear Tommy*, I recently purchased a Commodore 64 computer. On bringing it home, I found that after it had been left on for about half an hour, the TV screen started to flicker, and random characters began to appear on the screen. This continued to happen until the screen was full of alien characters, whereupon the cursor disappeared from the screen.**

At this stage I found I couldn't proceed any further (pressing restore and stop failed to clear the screen). My only option was to turn the computer off and then on again, thereby losing my program.

Last week, I took the machine back to the shop where it was purchased and was given a replacement.

I find that the same problem occurs with the replacement model, but this time only if I turn the television off and then on again, whilst the computer is on.

A friend of mine said that he has the same problems with his BBC computer. Apparently, if the TV flickers (or if it's turned off), it sends a "spike" to the computer, which causes these problems. He said that when he is typing in a program, every few minutes he saves what he has written on cassette, in case the above mentioned problems occur.

Is my friend correct, or are our computers faulty? It strikes me as very tedious to have to continually save things on tape or to have to stop in the middle of a game because of these so called "spikes".

Can turning the TV off and then on again — whilst the computer is on — ruin the computer?

I have another question. You mentioned the Bigmouth speech synthesizer in the May 85 issue of 'Commodore User'. Is this a cartridge and does one require any hardware to go with it? If not, why is it so much cheaper than any other speech synthesizer?

The problem is not so much with your computer as with your TV. Some TVs, or almost any electrical item in fact, generate a lot of 'garbage' in terms of electrical interference, some of which finds its way into the mains wiring. A 'spike' is a sudden very large voltage which appears on the mains and can increase the voltage level by over 50% for a fraction of a second. A 'surge' is a small increase for a longer period.

Either way, anything connected to the mains, even through a transformer, can suffer a sudden increase (or decrease) in the voltage levels in the circuits. Spikes and surges can therefore cause all sorts of problems to computers, spurious characters being only one of them.

It sometimes happens that it is not in fact your own equipment that is causing the problem, but next doors! Tumble driers, washing machines, dishwashers, TVs, electric kettles being turned on or off, all these can produce 'dirty mains'. The only real solution is to fit a mains filter plug on your computer. These are not cheap (anything from £12-£50), but do stop a lot of the garbage getting through. I always use one myself and they do work.

Turning the TV on and off will not damage the computer — only the data contained in it!

Regarding Bigmouth, this is a software based speech synthesiser which uses the on-board sound chip (SID) to produce the voice. It comes on a cassette and can be incorporated in your own programs. It is precisely because there is no hardware needed that it is so cheap.

Wrong connection

***Dear Tommy*, I have a Vic 20 Computer, I tried a cold start by connecting up pin no. 1 to pin no. 11. By mistake, I connected up pin no. 2 with pin 10 of the user port which resulted in my tape freezing up. But by connecting up no. 2 pin to either the 10 or 11 pin the tape works for short periods of time.**

Can you help as I have a vast amount of software I cannot use.

First of all, connecting pin 1 to pin 11 would NOT have done a cold start, but short circuited one of the 9vac lines. The correct pins for a cold start are 1 and 3. However, by connecting pins 2 & 10 you have connected the other 9vac line with the +5vdc line; not a very good ideas as you have almost certainly damaged one or more components in the computer. I am afraid this mistake is likely to cost you some money.

Continuing to connect either pins 10 or 11 to pin 2 will effectively put a half-wave rectified voltage on to the 5v line, providing a very unstable voltage (about 4v) to the cassette recorder (and anything else connected to the 5v line). Do NOT continue to use the computer in this condition.

If the cassette recorder won't work when the computer is switched on, but the computer works correctly in all other respects, then it may be a minor repair job. If the computer acts strangely as well then the damage is more serious. Either way you should take the computer to a dealer or send it to a repair firm. Explain what you have done since it could well speed up the time it takes them to trace the fault.

Nibble and bite

***Dear Tommy*, the Commodore 64 Programmer's Reference Guide says that in Multi-colour Hi-Res Mode, when both bits are set to a 1, "colour information comes from the colour nybble." Where is the colour nybble?**

This is just the colour RAM area. A 'nybble' (pronounced 'nibble') is, would you believe, half a bite (sorry, byte!). Because you only need four bits to represent the numbers 0-15, only half a byte is needed in the colour map to represent the fourth colour in the corresponding 8×8 block on the screen.

Pass the password

***Dear Tommy*, please could you send me a poke or program to disable:**
a) Run/stop
b) Run/stop and Restore
c) CTRL
d) C = (Commodore Logo Key)
e) Shift
f) Cursor controls.
And please could you send me a program listing which would require a password to carry on. I would be extremely grateful if you could help me.

There are some keys you can 'disable' and some keys you can just ignore. The Shift, CTRL and CBM key don't actually *do* anything on their own, only when used in conjunction with other keys. The following short program will do most of what you want in that it disables RUN/STOP and RESTORE, disables the SHIFT/CBM (upper/lower case toggle) and ignores all the cursor keys and all shifted alphabetic keys (ie you can't get the Commodore graphics characters).

It will, however, allow you to still use the shift key will the numeric keys. Note that because the program uses 'GET' to read the keyboard you do not get a cursor. Line 100 therefore puts a little yellow up-arrow on the screen to show the current cursor position (Note the use of 'Victuals' type command strings in line 1005).

```
10 PRINTCHR$(8): REM
   Disable SHIFT/C =
20 POKE 808,225: REM
   Disable RUN/STOP
   and RESTORE
1000 T$ = " "
```

```
1005 PRINT"<YEL>
     <CUL><WHT>";
1010 GETA$:IF A$ = " "
     THEN 1010
1020 IF A$ = CHR$(13)
     THEN 1070
1030 IF A$ = CHR$(20)
     THEN T$ = LEFT$(T$,
     LEN (T$) -1):
     GOTO 1060
1040 IF ASC(A$) <32 OR
     ASC(A$)>90 THEN
     1005
1050 T$ = T$ + A$
1060 PRINTA$:GOTO1005
1070 PRINT" ":RETURN
```

To use the input routine **GOSUB 1000**. On returning from the routine, **T** will contain the complete string that has just been input. It will allow deletion of mistakes, although don't attempt to delete more characters than you have typed.

Your second query can be solved with the following program. Since I imagine you want to keep the password in the program, but in a form which stops anyone reading it, you will have to do it in two operations.

Firstly, type in the program as written and run it. When it asks you for the password, type in the one you want to use and press Return. A number will appear on the screen. Now list **line 2000** and change the value in the data statement to the number that appeared on the screen. Having done that, delete **lines 30, 40** and **1065**.

You can now save the program and when you run it (after incorporating it into your own program) it will allow three attempts at the password before doing a cold start and resetting the computer. Because the password is encoded it cannot be read by anyone even if they see the listing. The password can be up to ten characters long which gives a pretty good chance of not being guessed!

```
   5 TRIES = 1
  10 INPUT"PASSWORD':
     PW$
  20 GOSUB 1000: IF
     EFLAG< >0 THEN 10
  30 PRINT TT
  40 END
1000 TT = 0:EFLAG = 0
1010 LN = LEN(PW$):
     LIMIT = 10
1020 IF LN<10 THEN
     LIMIT = LN
1030 FOR P = 1 TO LIMIT
1040 CH = ASC
     (MID$(PW$,P,1))
1050 TT=TT + ((CH - 63)*
(P + 26)*26)/(26 - P)
1060 NEXT P: TT=INT
     (TT)
1065 RETURN
1070 READ CHECK: IF
     CHECK=TT THEN
     RETURN
1080 IF TRIES >2 THEN
     SYS64738
1090 PRINT "INVALID
     PASSWORD —
     PLEASE TRY
     AGAIN"
1100 TRIES = TRIES + 1:
     EFLAG = 1:RESTORE
1010 RETURN
2000 DATA 1146
```

If you want to be really secure then you can read the password value in from a tape or disk file, especially if the program auto-runs. By adapting the code slightly you can even allow the user to change the password once he has got past the original password. This would then be stored in the password file ready for the next run.

Peripheral problem

***Dear Tommy*, I have encountered an interesting problem with peripherals on the 64 which I would be grateful if you could solve. My system consists of a 64 with cassette unit and three serial peripherals daisy chained in the following order; CBM 1541 disk drive (Address No. 8), CBM DPS 1101 Daisy Wheel Printer (No. 4) and Vic 1515 Dot Matrix Printer (No. 5).**

When all are powered up normally the system functions without problem but if I try to power up the 64 only without switching on the peripherals I am merely presented with a blank screen and the tape drive running continuously. If the peripherals are disconnected completely or the number unpowered reduced to two (either by removing one or switching any one item off) then the problem disappears leaving normal operations.

Although no disadvantage to the operation of my system I find the problem fascinating and should like to know why it happens. Can you help?

The problem is almost certainly due to the voltage level on the Serial/ATN line on the serial port. When the 64 first switches on, the Serial/ATN line goes 'low' (Logic 0), then 'high' (Logic 1). In normal operation this line only goes 'low' again when a peripheral wants to talk to the computer or vice-versa. If you have a number of unpowered devices on this line then the effect is to sink enough current into the input circuits of these devices to cause the voltage to drop below that required to indicate a Logic 1 level.

The result is that the computer sees the Serial /ATN line as 'low' all the time and is prevented from completing the power up sequence correctly. Turning a device on or removing one device allows the voltage level to rise sufficiently to restore normal operation. It is not good practise therefore to leave unpowered devices connected as it *can* affect serial bus operations even if the computer powers up correctly.

Spelling mistake

***Dear Tommy*, please could you tell me if you think that there is anything wrong with my Commodore 64. I have had it for 13 months and recently a couple of times when I have pressed shift/run stop, the screen comes up with "PRASS PLAY ON TAPE".**

I wonder if there is anything wrong if the first word is spelt wrongly.

Also please would you tell me if it is possible to change the screen to 80 columns instead of the normal 40 columns.

Normally when you get standard error messages being corrupted like this it indicates a memory fault, either in ROM or RAM. It appears to be fairly intermittent from what you say and unless there are other faults with the computer, such as normal text being corrupted in the same way, it may not get any worse. Unless it really becomes a problem I shouldn't worry about it too much since the computer is now out of warranty. Repairs could be rather expensive if a new ROM, or even a new memory chip, needed to be fitted.

As for getting an 80 character screen, this can only be done using a hardware converter such as the boards from Impex or Zero Electronics. Also, although some smaller black and white TVs *can* be used to display 80 columns, if you are going to do any amount of work with 80 columns then a proper monochrome monitor is almost essential. A colour TV cannot be used for 80 column working as the resolution is not high enought.

Joystick ports

***Dear Tommy*, I recently read about someone asking about a computer Joystick program but I would like to know how you give a choice for both ports. I would like to acquire a program asking you where your joystick is, port 1 or port 2 and then let you choose which one. Thank you.**

The following code will do what you want:

```
10 INPUT"WHICH
   JOYSTICK PORT (1 OR
   2)";PT
20 IF PT = 1 OR PT = 2
   THEN 40
30 PRINT"NO SUCH
   PORT — PLEASE TRY
   AGAIN": GOTO 10
40 PT = 56319 + PT
```

If you combine this code with the program I gave in the April issue all you need do is change **JR1** to **PT** in **line 20** and delete **line 10**, remembering of course that you will have to renumber it as well! (Note that there was a slight printing error in that program in line 20; change the **IFT** to **IF**).

Video connection

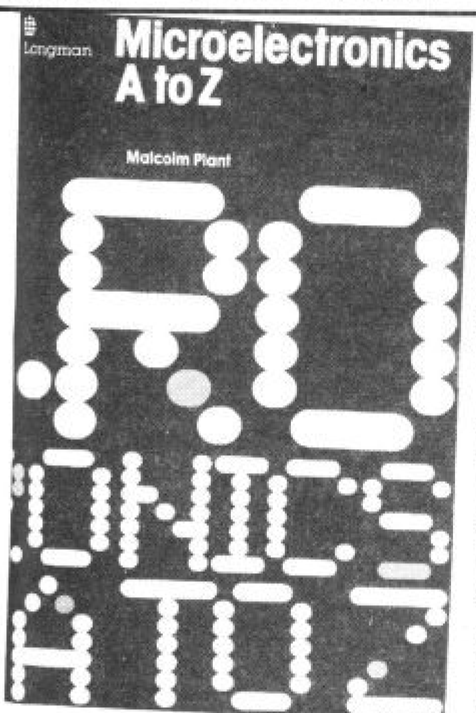
***Dear Tommy*, we use a Commodore 64 in conjunction with our normal television, which does present problems both in usage and the quality of picture obtained.**

The logical step is to purchase a monitor to get the better definition. However, the Commodore monitor set is a bit pricey. To justify such an outlay for the computer alone is not on, so, I have looked at TV/monitors but have been bewildered by the 64's requirements. Is it RGB or composite video, or something else that's needed?

Can you please advise on the best compromise, and what I should look out for.

I'm afraid that the Commodore 64 can only produce a composite video output. So you'd probably be wasting your money if you bought a RGB monitor.

The most satisfactory solution would be to buy or rent a television with a composite video input. Your only problem would be making the connection with the computer. On the TV end, you'll probably find two jack-plug sockets: one for the video signal, the other for sound. The 64's end has a DIN socket. Any respectable electrical shop will be able to make up a cable for you quite cheaply.



Micro Dictionary

What can you say about a microelectronics dictionary except that it's a mine of useful and useless information? Well, this one's fairly comprehensive and up to date as dictionaries go. Before you actually get to the A-Z there's a short section on the history of the chip if you're actually interested in that sort of thing.

Then starts the dictionary proper. Everything from A for Ampere to Z for Zuse (designer of a programmable calculator) and a great deal in between. Did you know for example that 'Baroque Technology' is 'the extravagant and sometimes needless use of sophisticated electronic equipment to enhance the performance of something'.

Or that someone with a heart pacemaker is a Cyborg. I'll spare you the definitions of 'forbidden gap', 'bistable multivibrator', and 'kludge'.

I can't help wondering what kind of people buy this kind of thing. Personally I can do without knowing that my Amstrad Hi-Fi incorporates the latest in Baroque Technology, or that my granny's a Cyborg. Put the three quid towards something more useful?

Ken McMahon

- **Microelectronics A to Z**
- **by Malcolm Plant**
- **Longman Group Ltd Longman House, Burnt Mill, Harlow, Essex**
- **£9.95**
- **A good dictionary — if you're into dictionaries**

More on Basic

There must by now be literally hundreds of books available on the subject of Basic programming on the Commodore 64. So when yet another with exactly that title landed on the desk, my initial reaction was, understandably, 'oh God, not another one.'

On closer examination, this 220 page volume is a considerably more optimistic offering. What makes this book such an improvement on those that have gone before is largely to do with the approach. The authors have set out to explain programming techniques and have used the many programs included as a further illustration of exactly what is involved.

So often it's done the other way round and what you end up with is a motley collection of programs tacked together with a few pages of explanation — not the best way to learn Basic.

The reader is introduced to the subject in the standard manner i.e. how to set up the 64, what the various bits and pieces do, and how a program works. The bulk of the book's thirteen chapters are concerned with explaining Commodore's Basic and the 64's hardware organisation.

On the graphics side everything from creating readable text displays to using the high resolution screen and programming moving sprites is covered. Sound is given similarly comprehensive treatment including a section on how music is actually written.

For those with more serious applications in mind the section on file handling covers how to design, sort and search files, the nuts and bolts of all database programs.

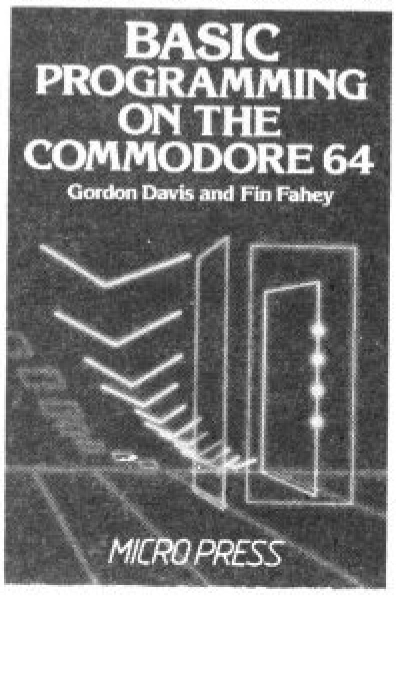
With the bread and butter stuff out of the way you're in for a real treat in the last three chapters. The first two deal with programming arcade and adventure games and you get the chance to put all you've learnt into practice.

Some useful routines are included like how to read the joystick ports and there are two games to type in — *City Bomber* and *King Arnold's Flapjacks*, each accompanied by an explanation of how they work.

The final section takes a look at Artificial Intelligence type programs in which the computer simulates human thought processes. Programs include a prose writer and a version of the famous Eliza program which generates uncannily human responses to user input.

Written in an easily readable style and packed with good programs, this book certainly justifies the £9.50 price tag. A worthwhile addition to your programming library if you can afford it.

Ken McMahon



- **Basic Programming on the Commodore 64**
- **by Gordon Davis and Fin Fahey**
- **Micro Press**
- **£9.95**
- **well written but pricey**

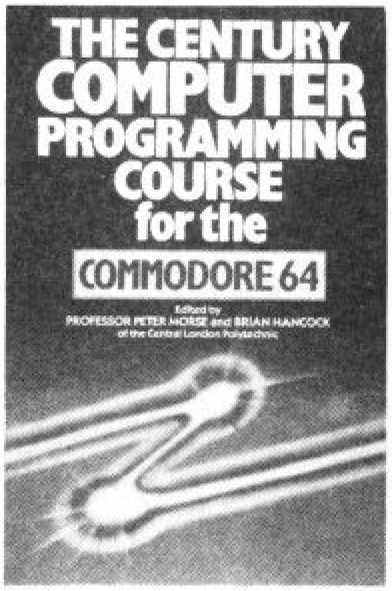
Tutor Time

If you're looking for a Basic tutor that you can browse through during the boring bits in World of Sport then don't buy *The Century Computer Programming Course For The Commodore 64*. As well as £10.95 this book is going to require a lot of dedication and hard graft.

Edited by professor Peter Morse and Brian Hancock of the Central London Polytechnic it's written very much in the style of a university text book. That means three hundred and forty pages, microscopic print, but no small talk, just how to write good Basic programs.

The authors recommend you set your 64 up in a quiet place where you won't be disturbed and spend about an hour a day working through the course. Given the amount of material in the book I estimate that would take you about four months working on it three days a week.

The material is arranged in four sections. First Steps,



Essentials of Basic Programming, The Complete Programming Method, and The Application of Programming.

The 64's individual traits are all covered in detail: graphics, colour and sound, loading and saving programs, to mention but a few. However, the book's main emphasis is on teaching sound programming methods. Hence, algorithms, flow and structure diagrams, decision structures and the like are all given extensive coverage.

Exercises are included at the end of each chapter so you can test your comprehension of the ground covered.

Don't be put off by the intellectual style of this tome. The approach is suitable whether you're a complete newcomer to Basic or have some experience and want to pick up some more sophisticated techniques.

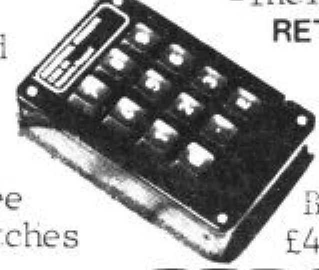
The reward for your hard work will be a sound grounding in the techniques of programming in Basic whether on the Commodore 64 or, for that matter, any other machine. From there on in it's up to you to put what you've learnt to use in your own programs.

Ken McMahon

- **The Century Computer Programming Course for the Commodore 64**
- **Ed. Prof. Peter Morse and Brian Hancock**
- **Century Communications, Portland House, 12-13 Greek St., London W1V 5LE**
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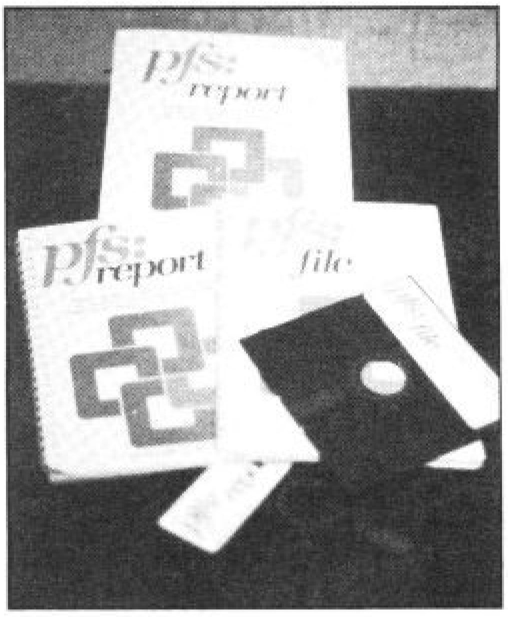
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New developments

Latest business software for the 64

This month Karl Dallas takes a break from reviewing individual business packages. He's rounded up the latest business offerings for the Commodore 64: two databases (one disk, one tape), a finance package that also runs on the Plus/4, and a piece of software that probes your mind . . .

by Karl Dallas



All American database

PFS: File is an American database, well-known on the IBM and compatibles, and no sacrifices appear to have been made in fitting it into the 64's memory. Its main advantage over other, ostensibly more powerful packages, is that it is really easy to use.

Not that it is simplistic. The search parameters are really sophisticated. It will match on on the first few characters of a field, the last few characters, or any group of characters within a field. Wildcards ("?") are permitted where the user isn't sure of the exact letter, or where it doesn't matter. Neither do searches distinguish between lower case and capitals.

Each record can contain up to 32 screen pages, but only one file can be stored on a single disk — so obviously, there is no way of linking together data in different files.

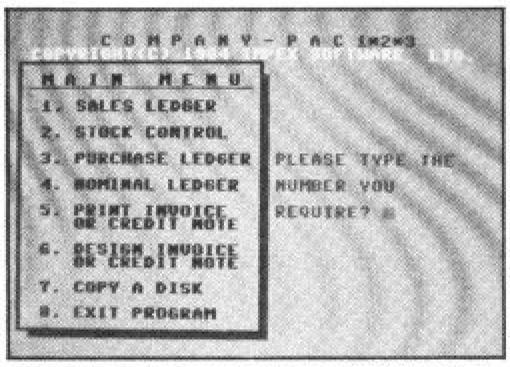
On its own, "PFS:file" has adequate report facilities — individual print specifications can be SAVEd and recalled, field names can be printed out as well as field data, print each field on a separate line separated from the next by two spaces, or print a report sorted on the first ten letters of any single field. (If the field is numeric, it must be padded with leading zeroes to make sure that it sorts properly. Otherwise 1000 will be taken as being less than 9, since it sorts on the ASCII value of the first character, as in an alphbetical sort.)

for a true report facility, you can buy the complementary **PFS:Report**. It cannot be used without PFS:file, though the program disk includes some specimen data for tutorial purposes. Basically, it organises the data stored by PFS:file into up to 20 vertical columns, performing calculations (eg running totals) resulting in up to three "derived" columns. Field names can be changed to allow them to fit into the tabular print-out form.

Report designs can be stored for future use and can be amended, possibly being re-SAVEd under new names. Up to eight different report formats can be stored for each "PFS:file" file.

Though some eyebrows may be raised at the joint price, the duo makes up a very easy-to-use and powerful package, an unusual combination of attributes.

- PFS: File
- PFS: Report
- P & P Micro Distributors, Todd Hall Road, Carrs Industrial Estate, Rossendale, Lancs BB4 5HU 0706 217744
- £83.95 (disk) (File)
- £73.60 (disk) (Report)



Main menu on Company Pac 1-2-3 showing primary options

Complete Finance package

Notable in that it was first written for the Plus/4 and is now made available for the 64, **Company Pac 1-2-3** is a very comprehensive accounts package, including sales ledger, purchase ledger, invoicing, stock control, and nominal ledger, allowing the user to proceed from one to the other via a main menu.

Sales and purchase ledger each allow up to 500 accounts, stock control can handle up to 500 items per disk, and nominal ledger can handle up to 500 items. On an average disk, up to 1000 transaction can be handled.

Its main weakness is nothing to do with software, but the fact that the 64/Plus/4 is basically a single-disk machine. So, since the various modules of the software are chained together, each time you change from one to the other, you have to swap your data disk for the program disk. There appears to be no easy way, for the lucky few who have a twin-disk 4040 drive or two 1541s, to configure the program to work without such disk-swapping.

One other surprising omission is that no file of customer names and addresses is kept, so while a three-digit number is allocated to each account (sales or purchase), you have to maintain a list of them outside the system.

In that case, it might have been better if three-letter mnemonics could have been used instead of figures: TES is easier to remember than 792, if you're dealing with Tesco, for instance.

Addresses *are* generated automatically when statements are prepared from previously printed invoices, however. And any such criticism has to be measured against the fact that this program is really pushing against the boundaries of the hardware capabilities. To achieve the same things with competitive software usually requires two separate programs, costing about £75 more.

The disk is protected to a degree that verges on paranoia. Not only can it not be copied, but it's impossible to display the directory. One advantage of this is that this prevents the user from trying to go direct to one of the modules instead of LOADing via the main menu, which is the only way it's guaranteed to work.

The wonderful thing about this program, for the beginner, is that it is very easy to use, which will make it a truly worthwhile investment. It is menu-driven throughout, and the excellently-written manual even explains the way you have to debit a nominal ledger when something is added to it, or credit it when something is taken away (the opposite of what you might expect), something most non-accountants find hard to grasp.

The 46-page spiral-bound manual is un-indexed, but since the sub-sections are indexed alphabetically within the chapter headings on the contents page, it is quite easy to find your way around. The glossary page only explains computer terms; it

might have been more useful to have explained the basic accounts terminology.

VAT is very well dealt with. You can enter gross figures (including VAT) or net figures (excluding), and the VAT is calculated and subtracted or added in each case, and you can also enter a zero percentage for non-VAT items.

This is probably the friendliest financial package I have come across, in a not notoriously friendly area. It's not cheap, but then you get what you pay for, don't you? In terms of power-per-pound it would rate fairly high, if not tops.

- Company Pac 1-2-3
- Impex Software
  Metro House,
  Second Way,
  Wembley, Middx.
  HA9 0TY
  01-900 0999
- £113.79 (disk)

Filing with Orpheus

Undoubtedly the pick of the current business packs **Megabase**, from Berkshire-based Orpheus, is a remarkably low priced yet very powerful database. Written in a Basic-like language called E-File, it is very fast and can be programmed with "macro" commands.

Megabase can only handle up to 26 fields, and since all manipulation is done in memory (one of the reasons it is so fast) its capacity is limited to about 21,000 characters of text. Field names must not exceed 458 characters in total.

Surprisingly, there are no BROWSE, NEXT or LAST commands to enable the user to move through the files one record at a time, though it would be fairly easy to construct a macro to do this.

A macro is a "sentence" (or programmable instruction) which can be made up from a comprehensive set of commands, most of these are self-explanatory, Others, like PON (Printer On), POFF (Printer Off), which direct output to printer or screen, will be familiar from other applications. The commands prefixed MAC-relate to macros. CR is used to send a carriage return, FF to send a form-feed, and PC to send a decimal print code to the printer.

For instance, in a name and address file, including a field showing much was owing, this could be updated with the macro:

FIND COMPANY = "JOE BLOGGS" ATRECORD MOVE 115.00 TO OWING PON DUMP.

This would place the desired figure within the field OWING and then print the entire record on the printer.

No variables are supported, but there are 19 "registers" (memory storage locations) into which data can be temporarily loaded and then MOVED to the appropriate field:

MOVE OWING TO #1
MOVE #1 TO BALANCE

The documentation is a ring-bound 35-page A5 book with a page devoted to each command and a brief but clear explanation of how to use micros. But the instructions on setting up fields is entirely on the screen and the eight lines on how to enter data presume a previous familiarity with databases.

Such a user will be surprised to find no way of limiting the length of each field (field name plus data appears to have a maximum length of 256 characters). It is explained that numeric entries are presumed to have two places of decimals, so that a zero entry is stored as ".00". This can be changed with FIX *n*, where *n* is the number of decimals required.

The manual says all commands must be entered in capitals, but this is not true. They must be in lower-case. Also, if SHIFT LOCK is on, then the Space Bar is disabled.

Megabase is so good that its occasional failings, and imperfect documentation, are all the harder to understand. But for less than £30, there can't be another Commodore 64 database to beat it.

- Megabase database
- Orpheus (Hallarch Ltd)
  The Smithy
  Unit 7, Church Farm,
  Hatley St George,
  nr. Sandy, Beds.
  0767 51481
- £24.95 (tape, £29.95 (disk)
- very good value

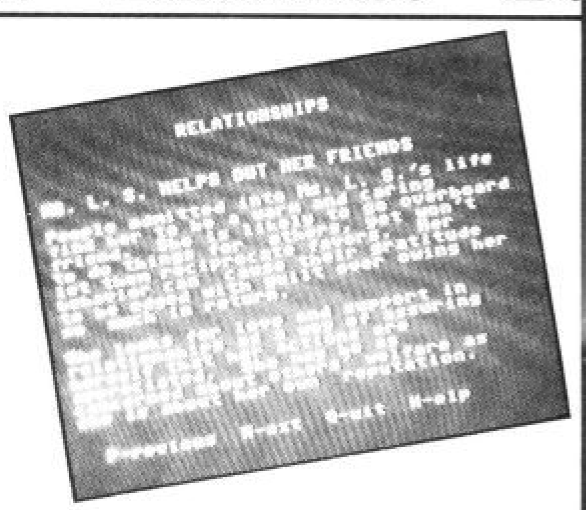
Probing your mind

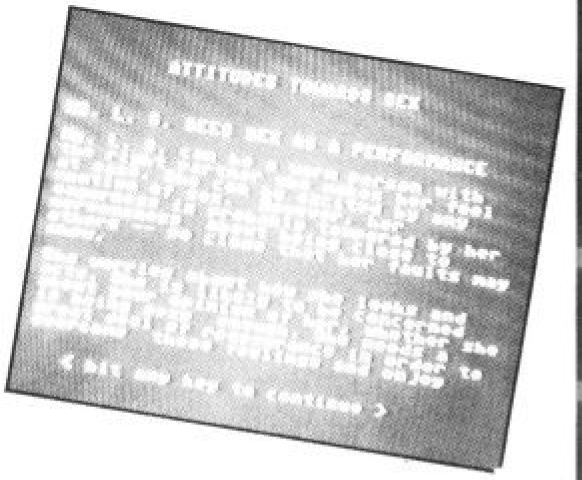
A program that claims to be able to assess human potential and goes by a space fiction name like "**Mind Prober**" sounds like some kind of a joke. But this is actually a scaled-down version of "The Human Edge", a suite of four programs for IBM and IBM-compatible machines which claim to "increase a user's individual professional skills in such areas as management, sales, negotiation and communitions" devised by a California software house, and costing over £1,000.

Thorn EMI, its distributor, claims that Mind Prober is the outcome of over ten years' development, involving behavioral scientists, business experts, and new techniques like human factors assessment, expert systems technology, and decision theory mathematics. Despite this, it is quite easy to learn, and very full on-screen instructions are available, plus a 148-page paperback on the techniques involved.

The entire procedure is entirely menu-driven, consisting mainly of a series of statements about the subject of your "mind probe" with which the user is invited to agree or disagree: words like talkative, apprehensive, independent, achieving, courteous, flaunting, empathetic . . . A detailed report is prepared, which may be viewed on the screen. Up to eight such reports can be stored on disk, and will be updated if you wish.

It might be helpful to have a good dictionary by you to help in understanding some of the terms, probably an American one, since the Oxford English Dictionary doesn't recognise words like "empathetic".





Mind Prober assesses the data you input and produces a 'personality' report

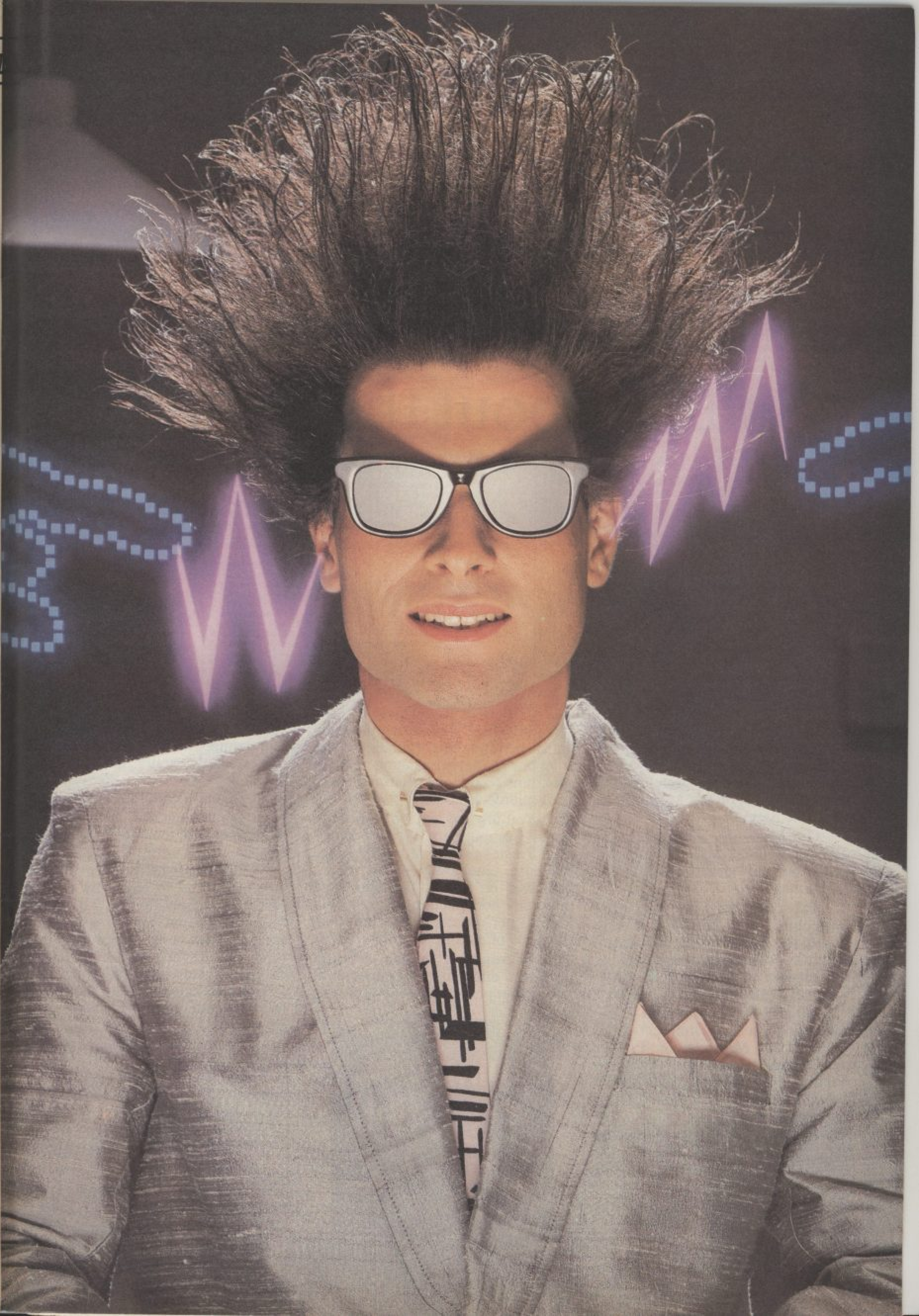
The user can return to any previous question to change an agreement to disagreement, or vice versa, and it is possible at any time to update a previous assessment in the light of further experience.

The vocabulary used by the reports would be familiar to those who read newspaper horoscopes or who participate in similar personality quizzes in women's magazines. The report is broken up into sub-headings: relationships, attitudes towards work, coping with stress, attitudes towards sex, what makes him/her tick.

A weakness in the program, assuming that it is meant to be taken seriously is the lack of any way of learning from experience (apart from updating one's own assessment of the subject). This is a failing it shares with the £1,000 version. It would have been valuable if users could enter the results of a proposed strategy, so that it could be modified in the light of experience, especially in evaluating subjects of whom little was known initially.

The most profitable way of using this package would be as an aid to careful preparation before an interview, say, but the user should probably be wary of taking its advice too literally — at least, until computers become true thinking machines.

- Mind Prober
- Thorn EMI Computer Software,
  296 Farnborough Road,
  Farnborough, Hants
  GU14 7NF.
  0252 543333
- £17.35 (disk)



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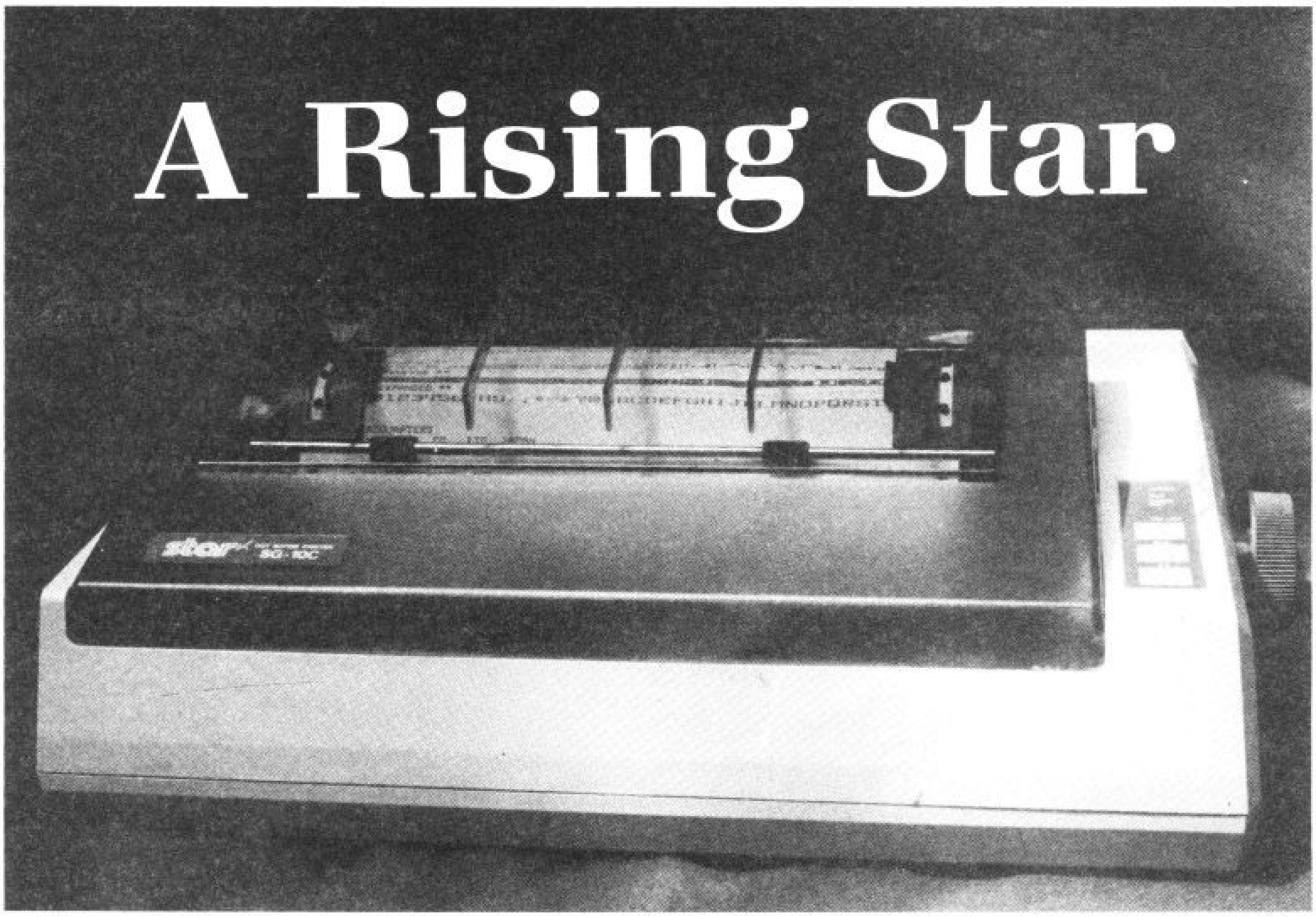
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A Rising Star



Star SG-10C Commodore printer reviewed

Buying a top-quality printer for your Commodore computer usually involves the nightmare of finding an interface adaptor that will let you use all the facilities offered. Star has solved the problem with the new and speedy SG-10C, a plug-in-and-go version of its popular SG-10. But, at £259, will it attract only up-market Commodore users?

The SG-10 series used to be called 'Gemini': Star changed the name because they thought it confusing. Geminis have been around for a long time and have proved themselves as top-quality machines along with the likes of Epson. The SG-10C is a 'Gemini' at heart but with a built-in Commodore interface and serial socket — there's no Centronics or RS232 interface.

The hardware

The SG-10C looks like most of the other 80-column dot matrix printers around. It's grey in colour and has a tinted perspex hood that helps to dampen the spine-chilling screech it makes when printing. It has both friction and tractor feed, with the easy-to-fit tractor unit supplied as standard.

Round the back there's two serial ports, so two Commodore machines (Vic, 64, 16 or Plus/4) could share the device. The DIP switches are located on the side; a marvellous idea because you don't have to take the top off (a tiresome job with Epsons) to alter their settings.

Again unlike Epsons, there's no ribbon cartridge, just two typewriter spools. That makes fitting the ribbon a little more complicated (you get more ink on your fingers) but the ribbons themselves should work out cheaper.

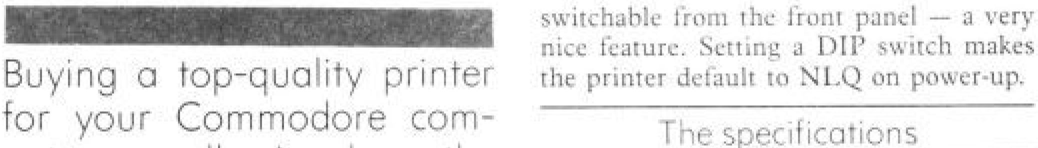
The front panel displays the usual indicators and switches, which are touch-sensitive. There's a paper-feed and on-line switch together with indicators for on-line, paper out (you also get a peeping sound) and NLQ. That stands for Near Letter Quality (more about that later), which is switchable from the front panel — a very nice feature. Setting a DIP switch makes the printer default to NLQ on power-up.

The specifications

The Star is a pretty sophisticated and fast printer that features a range of print specifications, fonts, and other facilities. Primarily it offers a very fast 110 character per second print speed with bi-directional print, in normal mode. The characters are printed on an 8 by 11 dot matrix. There's also logic-seeking: the print-head detects blank spaces at the end of lines and jumps over them to the next. Needless to say, you get true descenders.

In NLQ, or correspondence-quality mode, print is unidirectional and the speed halved. That's because the print head prints the line twice, shifting the dots that form the characters a little on the second pass, to fill the spaces in between. So you effectively get a 17 by 11 matrix which gives more solid and formed text — it compares favourably with a good typewriter.

The SG-10C prints across 80 columns in normal mode, but setting one of the DIP



switches gives condensed print across 136 columns. Setting another DIP switch gives italic print. By the way, these must be set before power-up.

Being totally Commodore compatible, the Star prints the complete Commodore graphics set, just like a real Commodore printer and will print dot-graphic screen dumps — useful for designing and printing your own letter-heads. There's facility for printing expanded and reverse characters, and an option for designing and down-loading your own character designs.

The Star in use

So let's plug the machine in. Connecting the Star to your computer is no problem: just plug in the serial cable that's provided into one of the two slots at the back of the printer. When you switch on, you don't get the irritating READY message printed as with Commodore printers. Paper is inserted either as single sheets, using the rubber roller, or as continuous stationary, using the tractor feed. Either way, the operation is very simple.

To print a program listing, for example, you would use the standard Commodore OPEN, PRINT and CLOSE commands. The printer responds to the usual device number 4. But you can default to device 5 by setting one of the DIP switches. In use, therefore, there's really no difference between this and a real Commodore printer.

Of course, you have a choice of two print modes: normal and NLQ. You would use normal mode for jobs that don't require

```
This is a test for the Star SG
10C Commodore-compatible printer
running in normal mode.

This is a test for the Star SG
10C Commodore-compatible printer
running in Near Letter Quality
(NLQ) mode.
```

good quality text. The extra speed you get means that printing out program listings, spreadsheets or the results of searches on a database are quick and painless.

Pretty obviously, the NLQ option would be used primarily for word-processed documents or any printing job that requires a higher standard of presentation. Print quality doesn't match up to 'daisy-wheel' standards but, for the price, it's probably the best you'll get. The SG-10C worked without problems on all the 64 wordprocessing packages we could throw at it, including Easyscript and FirstWord.

One comment though: most w/p packages ask you to select the type of printer used. You'll have to choose 'Commodore' which means some of the package's facilities (like embedded text enhancement commands) may be lost.

The Manual

Star seems to have gone out of its way to produce a manual that's simple to understand for first-time printer uses. It devotes sufficient space to setting up and using the printer and then delves into ways of controlling the device using Commodore's Basic commands. The various CHR$ functions are also explained and illustrated with numerous little Basic programs.

Finally, there's two chapters on creating your own characters and printing with dot graphics.

Your own characters can be used in conjunction with the standard set but you're not told how many you can define and whether or not the ASCII code you've used overwrites an existing character.

For printing with dot graphics, a much larger Basic program is given that prints a company logo.

Star printers have the reputation of being amongst the best 'budget' printers you can buy. And the SG-10C delivers the goods with the bonus of true Commodore compatibility. £259 is a very reasonable price for this machine, but it's expensive enough to take it out of the 'home' league.

However, it should definitely interest that breed of small-business users who've successfully adopted the 64 and want to get on with their business freed from the nightmare of choosing and using interface adaptors.

Bohdan Buciak

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AD INDEX

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You are now ready to proceed to the next skill level to face additional hazards, such as unpredictable swell and treacherous cross-winds.
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